DOCUMENT RESUME

ED 310 852 PS 018 205

AUTHOR Bickers, Patrick M.
TITLE Effects of Kindergarten Scheduling: A Summary of Research. Research Brief.
INSTITUTION Educational Research Service, Arlington, Va.
PUB DATE 89
NOTE 90p.
AVAILABLE FROM Educational Research Service, 2000 Clarendon Boulevard, Arlington, VA 22201 (Stock No. 217-00038. ERS subscriber price, $17.00; nonsubscriber price, $34.00. Add $2.50 postage and handling.)
PUB TYPE Information Analyses (070) -- Viewpoints (120)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Academic Achievement; Comparative Analysis; Educational History; *Kindergarten; Literature Reviews; Parent Attitudes; Primary Education; *Program Costs; *Student Behavior; *Teacher Attitudes
IDENTIFIERS Alternate Day Programs; *Full Day Programs; *Half Day Programs

ABSTRACT

Intended for principals, teachers, parents, and others, this research brief traces the historical development of the kindergarten in the United States, summarizes recent reviews of the kindergarten scheduling literature, and presents the findings of nearly 50 studies conducted to assess the relative effects of kindergarten scheduling on student achievement and behavior, parental and educator attitudes, and program cost. Synoptic tables are provided so that the reader can quickly ascertain the purpose, methodology, and findings of each summarized study. Specifically, after the definition of terms and the historical material, sections review surveys made in 1925, 1961, 1967, and 1985, summarize recent reviews of the literature, and compare full-day versus half-day schedules and alternate day versus half-day schedules. The comparisons are designed to provide educational decision makers with the most up-to-date information and research findings available on the relative advantages and disadvantages of the different approaches to scheduling. Based on the findings, conclusions point out merits of the alternative schedules. A total of 20 books and 17 articles are cited, in addition to 50 citations of studies for review. (RH)

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RESEARCH BRIEF

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Effects of Kindergarten Scheduling:

A Summary of Research

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RESEARCH BRIEF

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A Summary of Research

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Ordering information: ERS subscriber price: $17.00. (Single copy routinely mailed as part of subscription.) Nonsubscriber price: $34.00. Please add $2.50 postage and handling to prepaid orders. Actual cost of postage and handling will be added to billed orders.

Stock #217-00038

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Preface

Increasingly, education researchers and practitioners are reexamining the role of kindergarten in American public education. Kindergarten no longer is considered a luxury in education. Rather, it is an important introduction to the educational system, and an opportunity to lay the foundation for a successful scholastic career.

One of the basic questions about kindergarten is what kind of schedule best meets the needs of children. There are three basic kindergarten schedules now in use. *Half-Day* kindergarten is the traditional arrangement by which five-year-olds are in the classroom every day for either a morning or an afternoon session, but not for both. *Full-Day* kindergarten also meets daily, but remains in session for the length of a regular school day. *Alternate Day* kindergarten lasts for an entire school day, but meets only every other day.

In this research brief, *Effects of Kindergarten Scheduling: A Summary of Research*, the Educational Research Service provides a valuable resource for principals, teachers, parents, and others who are concerned that kindergarten be as beneficial and rewarding to young children as possible. For most of the post-World War II era, kindergarten programs operated on a half-day, every day schedule. This was due largely to the Baby Boom, during which schools had to accommodate a burgeoning population of five-year-olds. Today, however, more school decision makers are considering full-day and alternate day options for their kindergarten schedules. School officials need the latest, most reliable information available upon which to base these important decisions. The data in this brief will assist those school officials who are currently reassessing their kindergarten's place within their public school system.

The National Association of Elementary School Principals greatly appreciates the contribution of Educational Research Service, through this research brief and its other valuable services, to the mission of educating America's children and young people.

Samuel G. Sava
Executive Director
National Association of
Elementary School Principals

Foreword

This ERS research brief, *Effects of Kindergarten Scheduling: A Summary of Research*, traces the historical development of the kindergarten in the United States, summarizes recent reviews of the kindergarten scheduling literature, and presents the findings of nearly 50 studies conducted to assess the relative effects of kindergarten scheduling on student achievement and behavior, parental and educator attitudes, and program cost. Synoptic tables are also provided so that the reader can quickly ascertain the purpose, methodology, and findings of each study summarized.

In many school districts throughout the United States, school officials are facing important decisions concerning their kindergarten programs. *Effects of Kindergarten Scheduling: A Summary of Research* is designed to provide these decision makers with the most up-to-date information and research findings available on the relative advantages and disadvantages of the half-day, full-day, and alternate day kindergarten schedules. We sincerely hope that this analysis will be helpful to those persons and agencies involved in making decisions affecting kindergarten children.

Glen Robinson
Director of Research
Educational Research Service

Definition of Terms

Half-Day Kindergarten: A kindergarten schedule wherein a group of children attend class daily, either in the morning or afternoon, but not both.

Full-Day Kindergarten: A kindergarten schedule in which the same group of children attend both a morning and an afternoon class session, on a daily basis, so that children spend up to twice the number of hours in class per week as children enrolled in a half-day schedule.

Alternate Day Kindergarten: A class schedule similar to that of the full-day schedule, except that it meets every other day, so that children spend approximately the same number of hours in class per week as children enrolled in a half-day schedule.

Historical Development of the Kindergarten

Froebel and His Philosophy

The Kindergarten—meaning "child's garden"—was the creation of Friedrich Froebel (1782-1852), a German philosopher and teacher. Froebel, influenced by the romantic liberalism that swept 19th-century Germany, rejected the notion of a strictly disciplined, content-centered education. He believed that children were innately good and were avid learners. He sought to make their initial educational experience child-centered.[Lazerson 1972, 36-7] Froebel observed that children were by nature physically active. Therefore, he gave physical play a central role in his kindergarten.

The core of Froebel's curriculum was composed of the *Gifts* and the *Occupations*. The Gifts were manipulatable objects, such as plastic and wooden balls, cylinders, and cubes, suitably sized for children three to seven years old. In the Froebelian kindergarten, the Gifts symbolized the unity and the diversity of the universe. By playing with these objects, children could explore the various natural relationships which existed in the greater universe, and do so in a manner completely natural to them.[Spodek 1985, 15] The Occupations were constructive activities such as weaving, sewing, and paperfolding. By engaging in such activities the children had an opportunity not only to learn, but also to express themselves artistically.[Spodek 1985, 15]

Although Froebel's curriculum was child-centered, it was not completely unstructured. The Gifts were given to the children for exploration in a specifically prescribed sequence. There were 10 Gifts in all, each to be used in the precise manner delineated by Froebel himself. [Weber 1969, 13]

Froebel opened his first kindergarten in Blankenburg, Germany, in 1837. Apart from distributing the Gifts in a carefully predetermined manner, Froebel's kindergarten teachers were essentially passive. They were to foster a loving, nurturing atmosphere for the children, and to respond sensitively to the particular needs of each child. Initially, Froebel entrusted this task exclusively to men. He lifted his restriction against female kindergarten teachers only after he married.[Rudolph and Cohen 1984, 1]

Froebel's most basic premise was that childhood was much more than preparation for adulthood. For him, the

experience of childhood was meaningful in and of itself. "The child, the boy, the man, indeed," he wrote, "should know no endeavor but to be at every stage of development, wholly what this stage calls for. Then will each stage spring like a new shoot from a healthy bud."[Weber 1969, 8]

Development of Kindergarten in the United States

Froebel's ideas about early childhood education arrived in the United States with a new stream of German immigrants. German immigration to the United States accelerated after 1848, when attempts at revolution and reform failed throughout the various German principalities. Many of these reformers turned emigrants had been influenced by the same liberal and romantic ideals that had moved Froebel. A number of the ideals which these "forty-eighters" brought with them found a receptive environment in America. Among these ideals was the belief in the perfectibility of man, and in the innate goodness of children. Consequently, kindergarten in the United States has a distinctly German heritage.

The first kindergarten in the United States was established by Margarethe Schurz, a German immigrant and a disciple of Froebel.[Osborn 1980, 21] In 1856, Schurz initiated a German-language kindergarten in Watertown, Wisconsin. Her kindergarten was private, limited to the children of her relatives. Nevertheless, it was the first transplantation of the Froebelian concept of early childhood education to the new world.

Schurz's influence was not confined to her Watertown school. Elizabeth Peabody, herself an advocate of social reform, met Schurz—apparently by chance—in Boston in 1859.[Weber 1969, 20] Peabody was so impressed with Schurz that she focused her reformist energies on the kindergarten. The following year, 1860, Peabody established the first English-language kindergarten in the United States.[Spodek 1985, 16]

In 1867, Peabody went to Germany specifically to study the Froebelian kindergarten more closely. Upon her return to the United States in 1868, Peabody wrote, toured, and lectured extensively on behalf of the kindergarten movement. Among those whom Peabody influenced was Dr. William T. Harris, the superintendent of public schools in St. Louis.[Osborn 1980, 22]

As kindergarten spread throughout the United States, the continued reliance on teachers trained in Germany exposed a vulnerability in the American kindergarten. If the movement was to continue to thrive and to grow, then kindergarten teachers would have to be trained in the United States. To that end, John Kraus and Maria Kraus Boelte—followers of Froebel and his widow, respectively—conducted seminars on teaching kindergarten, and published *The Kindergarten Guide* in 1877. Also during this time, Mathilde Kriege arrived from Germany and founded a training school for American kindergarten teachers in Boston. Similar training schools were soon established in Washington, D.C., and Los Angeles. [Weber 1969, 21-2]

The last quarter of the 19th century witnessed a dramatic growth in

the number of kindergartens in the United States. Kindergartens were formed in Washington, D.C., Louisville, Cincinnati, Indianapolis, Detroit, Milwaukee, and as far west as San Francisco and Los Angeles. Most of these kindergartens were initially private concerns. In 1870, there had been fewer than one dozen kindergartens operating in the United States; by 1880 there were at least 400 kindergartens in 30 states.[Weber 1969, 36]

Probably the most significant development during this period took place in St. Louis in 1873. In that year, Superintendent Harris successfully integrated a kindergarten program into the public school system. Harris was assisted by Susan Blow, another disciple of Froebel. Blow was the first director of this public kindergarten. She insisted that her teacher trainees work in the classroom in the morning and study theory in the afternoon.[Osborn 1980, 25] In 1875, Superintendent Harris pronounced the St. Louis program a success, while stressing the need for greater effort in reaching out to children of the poor.[Osborn 1980, 24] Despite the success in St. Louis, public kindergarten did not become widespread in the United States for another two decades.[Spodek 1985, 16]

Although most public school systems were slow to follow St. Louis' lead, kindergartens continued to spread through the work of private philanthropists. In the meantime, the National Education Association established a department of kindergarten education in 1884, and called for the inclusion of kindergarten in all public school systems in 1885.[Osborn 1980, 27] In 1891 Michigan became the first state to pass legislation authorizing the establishment of kindergartens. Other states soon followed Michigan's example, as all but eleven enacted kindergarten legislation by the end of the century.

Kindergarten and Social Reform

The rapid growth in the number of kindergartens occurred within the broader context of American social reform. During the last three decades of the 19th century, reform movements in areas such as temperance, prison reform, aid to the emotionally disturbed, and education spread throughout the United States. Kindergartens, based on Froebelian idealism, were compatible with these and other humanitarian movements aimed at bettering the human condition. Especially in the years prior to the institution of public kindergartens, philanthropic reformers focused much of their energy on the establishment and growth of kindergartens.

Two groups of children were of particular concern to kindergarten social reformers: immigrants and the native urban poor. Immigrants entered the United States in unprecedented millions between 1870 and 1910. The vast majority were from southern and eastern Europe, and brought with them linguistic, religious, and social customs which were beyond the experience of most native-born Americans. Some "citizens' groups" confronted the new immigrants with hostility and sought to have them barred from entering the United States, or returned to their countries of birth. Other groups, however, endeavored to ease the difficult transition facing the newcomers in an alien society.

The following excerpt is from an address delivered by Richard Gilder, of

the New York Kindergarten Association, to the National Education Association in 1903. In many respects, it typifies the attitude of education reformers toward the new immigrants of the late 19th century:

> You cannot catch your citizen too early to make him a good citizen. The kindergarten age marks our earliest opportunity to catch the little Russian, the little Italian, the little German, Pole, Syrian, and the rest and begin to make good American citizens of them. And your little American-born citizen is often quite as much in need of early catching and training.[Lazerson 1972, 39-40]

Establishing kindergartens for immigrant children also permitted their mothers to work outside the home to supplement the family income. Wages paid to immigrant workers barely reached the subsistence level. One income was usually insufficient to afford even the slum housing and meager food with which the new Americans lived. Therefore, clean and safe kindergartens directed by "motherly women" made it easier for immigrant mothers to obtain the work necessary for their families' survival.[Spodek 1985, 16]

This same enthusiasm for reform was applied to America's native-born urban poor. The coming of the industrial age heralded a mass exodus from the rural areas to the central cities. A great many people journeyed to northeastern and midwestern factories in search of higher paying jobs. In some ways, city streets were as foreign to American rural children as they were to the immigrant children. Philanthropists saw an opportunity to save these youngsters from the "evil associations" all too easily made on the streets of urban ghettos. [Weber 1969, 29]

Settlement houses, such as Jane Addams' Hull House in Chicago, tried to counteract the adverse social and educational effects of slum living. With such assistance, poor children might be better able to overcome the handicaps that accompany poverty, and attain a quality of education equal to that of other children. The aim of these privately operated programs was not essentially different from that of the federally funded Head Start program more than one-half century later.

Besides remediation for disadvantaged children, kindergarten programs held out the broader promise of democratizing American society as a whole. The efficacy of education as the key to a better life for all was a basic tenet of the reformers' faith. Beyond that, the kindergarten experience could also have a corrective effect on affluent children, who were presumably overindulged at home.[Rudolph and Cohen 1984, 3] St. Louis school superintendent Harris argued, in effect, that such a leveling between children of the rich and children of the poor would be healthy for the United States.[Weber 1969, 29]

Conflict Within the Kindergarten Movement

By the turn of the century, the American kindergarten movement was torn by an intense debate. The Froebelians were once revolutionaries in the field of early childhood education. By the 1890s, however, they had become the conservatives defending Froebel's

concept and practice of kindergarten against a new field of reformers. The ensuing debate was symptomatic of the deep division that had split the movement into traditionalists and progressives.

The traditionalists believed that Froebel's philosophy and methodology were ideal for all times, in all circumstances. Most of the progressives proposed to retain the Froebelian emphasis on child-centered education. They believed, however, that Froebel's methodology was increasingly outdated in light of empirical studies of the American child, situated in an urban, industrial America.[Spodek 1985, 16-17] The traditionalists believed that Froebel's kindergarten was eternal; the progressives believed it should be updated to keep pace with expanding human knowledge and experience.

Actually, the progressives were not as uniform in their ideas and practices as were the traditionalists. While agreeing in general that kindergarten needed reforming, they varied somewhat on specific implementation. One of those in the progressive forefront was John Dewey. Dewey's philosophical outlook was scientific and secular, as opposed to Froebel's mystical outlook on eternal truths.[Weber 1969, 51] Dewey stressed the need for practicality in learning, relying heavily on developing problem-solving skills. Socialization was also important to Dewey, as he believed that learning how to make cooperative efforts would best prepare young children to solve the problems of the adult world.[Lazerson 1972, 43]

Patty Smith Hill, a professor at Columbia University's Teacher College, was perhaps the progressives' most articulate spokesperson. Believing that kindergarten should reflect the culture of 20th-century America rather than 19th-century Germany, Hill replaced Froebel's traditionally prescribed Gifts and Occupations with objects that were more familiar to urban American children, such as building blocks, dolls, and miniature housekeeping materials.[Spodek 1985, 17] She also dispensed with what she saw as the formalism of Froebel's distribution of the Gifts. Rather than giving them to the children in a standardized manner, Hill encouraged the children to explore those objects that aroused their curiosity.

The more protracted the debate between the traditionalists and progressives became, the more irreconcilable it appeared. The International Kindergarten Union—formed in 1892 to foster the growth and development of kindergarten—sought to heal the dispute. In 1903, the IKU appointed the Committee of Nineteen, and assigned it the difficult task of effecting a reconciliation. The committee labored for six years. The futility of its task was demonstrated when the committee could not arrive at a single report to issue to IKU members. Instead, at the 1909 general meeting, three separate reports were issued: one conservative; one progressive; and one which sought to find a middle ground between the other two.[Osborn 1980, 34]

The conservative report was clearly Froebelian, and was signed by 10 of the 19 committee members. Most of the other members vacillated between the remaining two reports. These nine members were torn between the conviction that traditional kindergarten was in need of reforming, and their reluctance to discard much of the belief system which had supported the American kindergarten since its inception.[Weber 1969, 70] The

progressives' report made two main points: education must base its methods upon scientifically derived knowledge; and the aim of education must be determined by what is beneficial for modern society. In the end, five of the remaining nine committee members signed both the progressive and the "liberal-conservative" reports.[Weber 1969, 71]

Although a slight majority of the Committee of Nineteen signed the conservatives' report, the irreconcilable division on the committee, and among IKU members as a whole, signaled the passing of kindergarten philosophy from Froebel to Dewey and Hill.[Osborn 1980, 34] Shortly after the final reports were issued, the debate shifted from *whether* to align kindergarten with scientific principles to *how* to align kindergarten with scientific principles. [Weber 1969, 72]

The Kindergarten and the Montessori Method

While the debate between the traditionalists and the progressives was still engaged, a new system of kindergarten was imported into the United States. Maria Montessori was already a pioneer when her method of early childhood education became widely known. Montessori (1870-1952) is recognized as the first woman physician in Italian history.[Miezitis 1973, 123] Her initial work in education was with mentally handicapped children, ages three to seven. At Rome's Orthophrenic Schools, Dr. Montessori earned acclaim for her success in teaching basic discrimination skills to retarded children. Her results encouraged her to expand her work to include the slum children of Rome, culminating in the establishment of her *case dei bambini* ("children's houses").

Montessori's educational method stressed "autoeducation,"—that the individual child is an active self-learner when sustained by a stimulating, yet orderly environment.[Miezitis 1973, 124] She also held that sensory perception was the major basis for mental development.[Lazerson 1972, 44] Montessori herself wrote: "A room in which all the children move about usefully, intelligently, and voluntarily, without committing any rough or rude act, would seem to me a classroom very well disciplined indeed."[Weber 1969, 76]

Initially, the Montessori Method was received favorably in the United States. The progressives, however, having settled matters with the traditionalists, turned their disapproving attention to Montessori.[Weber 1969, 72-73] The disdain in which progressives held Froebelian individualism applied equally to Montessori's system. Convinced that modern scientific knowledge had clarified that kindergarten should be a cooperative and not an individualistic effort, progressives considered the Montessori Method to be based on an outmoded and discredited psychological base.

Professor William Heard Kilpatrick of Columbia University traveled to Rome to observe Montessori's school firsthand. What followed was a highly critical book, *The Montessori System Examined*, published in 1914. Kilpatrick's severest criticisms concerned Montessori's emphasis on sensory-perception learning, and her classroom environment, which he found too orderly and lacking in stimulation. In other

words, the children had too little opportunity for self-expression.[Weber 1969, 81] Progressives in general were also skeptical of Montessori's claim that children could be taught to read and write at age five without causing them emotional and perhaps physical damage. [Lazerson 1972, 44-45]

Kilpatrick's critical review was instrumental in preventing the Montessori Method's widespread practice in the United States.[Osborn 1980, 37] After the initial acclaim, the Montessori Method was largely discarded in favor of progressive kindergarten philosophy. It remained in the background of kindergarten practice in the United States for nearly 50 years, before undergoing a renaissance in the late 1950s.[Miezitis 1973, 123]

Developments in the 20th Century

Kindergarten and the Public Schools

As kindergarten became a more common feature of education, problems arose with the educational establishment. Kindergarten supporters encountered difficulty because many states had laws stipulating the age at which children could start school, usually six or older. Because of the legal restriction, states were reluctant to extend funding for the operation of kindergartens. This void helped stimulate the proliferation of private kindergartens.

In 1909, the National Kindergarten Association was formed to promote the cause of public kindergarten. Most often, the N.K.A. worked to remove the legal obstacles to establishing public kindergartens. In some states, this took the form of statutory enactments; in others, constitutional amendments were required. In some instances, the minimum age for public schooling was lowered; in others, funding laws were reformed. No matter the circumstance, the N.K.A. maintained an active role. Between 1892 and 1913, 34 states provided the necessary statutory or constitutional authority for public school systems to establish kindergartens or to absorb private ones.[Shapiro 1983, 139-40] Once incorporation of kindergarten by the public school systems was allowed, local city councils were typically the agencies through which it was accomplished.

In most large cities, the campaign for public school kindergarten followed a discernible pattern. Reform-minded newspapers would publicize the corruption and inefficiency which sometimes hampered those school districts operated by political appointees. Kindergarten personnel, civic reformers, and muckrakers would take the opportunity to contrast the idealism and enthusiasm of the private kindergartens with the more stark realities of those public schools which were politically operated. Often, the resulting publicity would force city governments to investigate child-care agencies of all kinds. When the investigators interviewed kindergarten officials, the officials would testify to the positive value of kindergartens.[Shapiro 1983, 133-34] At that point, kindergarten supporters hoped for more serious consideration from school superintendents.

Upon being incorporated into the public school system, most kindergartens underwent several important changes.

One change concerned the lines of authority. Previously, the local kindergarten director had operated the kindergarten virtually autonomously. After incorporation, authority became centralized into the district school supervisor. Another change was the alignment which took place between kindergarten and the primary grades. Usually this was accomplished through standardization of curricula and teacher standards.[Shapiro 1983, 141-42] The greatest change, however, was the diminution of the kindergarten's broader social work function. After incorporation, the focus was almost entirely on kindergarten classroom activity.[Ross 1976, 92-3] The advantage of greater access to more children which incorporation afforded kindergartens was accompanied by the teachers' loss of direct extracurricular contact with the children and their parents.

The years immediately preceding the First World War were ones of rapid growth in the number of cities with publicly supported kindergartens. In 1902, there were 260,000 kindergarten pupils in the United States, and 60 percent of them were enrolled in public kindergartens. By 1912, there were 365,000 kindergartners, and the percentage of the students enrolled in public programs had risen to 85 percent. In all, 12 percent of the four-to-six-year-olds in the United States were attending school.[Lazerson 1972, 41]

Kindergarten Teachers

Assimilating private kindergartens and private kindergarten teachers into the public school system was sometimes difficult. To accommodate the kindergarten teachers' social reform mission, private kindergartens had developed into half-day enterprises. The morning hours were dedicated to classroom instruction, and the afternoon was given to home visitations or attention to other non-classroom aspects of the childrens' lives. Once they were part of the public school system, however, the kindergarten teachers were expected to teach a morning and an afternoon session. School officials insisted on double sessions for three reasons: because primary school teachers were in class all day, kindergarten teachers should do the same; twice as many children could be accommodated by double sessions; and kindergarten programs were too costly to the school system to operate for only half of the day.[Ross 1976, 92]

Kindergarten teachers generally objected to the double-session day. They saw their mission as essentially different from that of elementary school teachers, rendering such comparisons as the number of hours spent in class irrelevant. Nevertheless, the public school officials usually prevailed. By 1912, nearly two-thirds of all public kindergartens were operating on the double-session schedule.[Shapiro 1983, 146]

Additional friction arose during the process of aligning the kindergarten with the primary grades. How kindergarten should function in relation to first grade was a question around which sharp differences developed. Primary teachers often believed that kindergarten should prepare children to become elementary school pupils. One primary teacher, writing in 1899, was very critical of the children who came to her class from kindergarten. She complained that such children did not pay attention unless they were being catered to. She also implied

that they lacked the necessary discipline to learn the three Rs as well as they should. She expressed exasperation that these children seemed to expect kindergarten to continue into primary school.[Ross 1976, 94-95]

The kindergarten community responded in one of two ways. Some of its intellectual leaders replied that primary teachers did not understand what genuine discipline was, that is, each individual going about his business without disturbing anyone else.[Ross 1976, 95-96] (This definition was, ironically, rather Montessorian, and in other circumstances, was attacked by progressives for undermining the development of a social awareness.) Hill labeled primary teacher attitudes such as the one expressed above as "the tyranny of the primary teacher."

The other response (and an increasingly common one) was the introduction of a more "traditional discipline" into kindergarten classrooms. This sort of standardization aligned kindergartens with first grade more fully.[Ross 1976, 96]

Teacher training for kindergarten was considered of paramount importance by practitioners. With the spread of kindergarten programs, normal schools, the initial teacher training institutions, began including kindergarten courses in their curricula. Among the more notable state normal schools to offer kindergarten teacher training were the ones in Oshkosh, Wisconsin; Winona, Minnesota; Oswego and New Fredonia, New York; and Emporia, Kansas. These programs sought to assure kindergartens of an adequate supply of properly prepared teachers.[Synder 1971, 360]

Admission standards to kindergarten teacher training programs were high. In some cases, the admission process was more selective in private training schools than in state normal schools. Typically, the curriculum consisted of one year of study and observation, followed by a year of practice teaching.[Ross 1976, 59-60]

Despite Froebel's initial exclusive use of men as kindergarten teachers, the movement in the United States was led by women from the outset. The first American kindergarten was formed by a woman (Margarethe Schurz); the young movement's most effective spokesperson was a woman (Elizabeth Peabody); and it was a woman (Susan Blow) who oversaw the first public kindergarten in St. Louis. By the 1880s, schoolteaching had become a socially and parentally accepted career choice for women.[Ross 1976, 52-53] Working with young schoolchildren was seen as a parallel to motherhood. Therefore, it gave a young woman an opportunity to pursue a career of her own, but one which would not subvert her "natural maternal instincts."

Other Changes and Concerns

In the 1920s, the new scientific learning led kindergarten to come under the influence of behaviorism. Psychologist Edward Thorndike, in his "Notes on Psychology for Kindergartners," wrote:

> human life is a bundle of habits; that what we mean by knowledge is the sequence of habits among ideas; that what we mean by capacity is the possibility of forming a certain set of habits.[Weber 1969, 54]

For Thorndike, learning was the implementation of stimulus-response in the schoolroom. His advice to teachers was to work directly to evoke concrete behavioral habits from their students. The teacher would know how successful he was by how well his students had learned the desired behavioral responses.[Weber 1969, 54] The extent to which behaviorism was practiced in the classroom with young children is an indication of how far removed from Froebelian principles kindergarten had become.

The decade of the twenties saw other innovations and changes. Kindergarten teaching was increasingly defined as a professional endeavor. Along with the proliferation of scientific learning theories, the first professional journal for childhood learning was introduced. *The Journal of Childhood Education* was first published in 1924.[Shapiro 1983, 193] This facilitated the systematic dissemination of the latest scientific thought among kindergarten practitioners.

In addition, the National Education Association conducted the first comprehensive survey of kindergarten practices in 1925. In order to gather information, 137 kindergartens in 34 states and the District of Columbia were observed, and replies to questionnaires were received from 535 teachers and 162 administrators. Some of the major findings of the survey were:

- The kindergarten was being considered an integral part of the public school system.
- The kindergarten day was devoted 36 percent to physical education, 33 percent to the general arts, 16 percent to general assemblies, 9 percent to literature and language, and 6 percent to music.
- Beginning numbers and reading were part of the curriculum in some schools.
- There were nearly as many afternoon sessions as morning sessions.
- The most common entrance ages were four and five years, with mental age often being used in combination with chronological age to determine promotion from kindergarten. [Gardner 1986, 1-2]

During the 1930s, the greatest external factor shaping kindergarten was the Great Depression; a catastrophe of such magnitude that no segment of the population nor aspect of society was unaffected. Its debilitating effects on the kindergarten movement can be seen in the numbers of students enrolled and teachers employed. In 1930, there were nearly 750,000 pupils attending kindergarten. Within a few years, the number had fallen 20 percent to approximately 600,000.[Weber 1969, 194-195] During the same period, the number of kindergarten teachers fell by 19 percent. The average per pupil expenditure fell from $51 to $40. To save more money, many cities eliminated kindergarten altogether.[Lazerson 1972, 50]

By some measures, kindergarten was affected more adversely by the depression than were other areas of education. While kindergarten teaching staff was being reduced by 19 percent, staff reduction in education as a whole was 5 percent.[Lazerson 1972, 50] Simultaneously, nursery school programs expanded rapidly through federal Works Progress Administration funds, while

kindergarten had to rely on shrinking local economies.[Weber 1969, 195]

During the late twenties and early thirties, Arnold Gesell emerged as the leading theoretician of childhood development. Gesell introduced the concept of developmental norms. He believed that intelligence was fixed and that growth occurred in definable stages. Gesell based his theories on his observations of children from financially and emotionally secure homes. "Maturation proceeds in an orderly fixed rate," he wrote, "so long as the metabolic requirements of the infant and child are met." [Shapiro 1983, 194]

Gesell's ideas were particularly meaningful for those involved with early childhood education. Gesell said that the early years were the most important in human development, because they came first in a "dynamic sequence" and inevitably affected all subsequent development.[Osborn 1980, 41-42] As educators of young children, kindergarten teachers played a vital part in the first dynamic stage of growth—and by extension all later stages as well. In addition, parents and teachers were attracted to the idea of developmental norms, as they offered an orderly scheme in the children's physical, intellectual, and social development.[Shapiro 1983, 194]

The next external event to exert a powerful influence on the development of kindergarten was the post-World War II Baby Boom. Throughout the 1950s and early 1960s, kindergarten enrollments increased dramatically, placing the system under tremendous strain. It became common for kindergartens to have 50 children in a single classroom.[Weber 1969, 196] The sheer numbers of children made two half-day sessions per day even more necessary. Each session had a completely different group of children. In this way, a greater number of pupils could be accommodated.

In 1961, with the Baby Boom still in progress, the NEA conducted another survey of kindergarten practices. This survey included questionnaire replies from 281 public school kindergarten teachers, 161 private school kindergarten teachers, and 385 public elementary school principals. Some of the major findings concerning *public* kindergarten were:

- Almost 90 percent of the respondents reported having two half-day sessions, while only 3.5 percent reported having an all-day session with the same pupils.
- The median class size for a morning and afternoon session was 28 pupils; the median class size for a full-day session was 32 pupils.
- 80 percent of the respondents reported there were no classroom assistants in their kindergarten.
- The median minimum age for admission to kindergarten was four years, eight months. [Gardner 1986, 2]

In 1965, President Lyndon Johnson proposed Project Head Start as part of his War on Poverty program. Philosophically, Head Start is reminiscent of many of the social reform aspects of 19th-century kindergartens. It was conceived as a means of making early childhood education available to poor children who would otherwise quite likely fall behind their more affluent peers, with little hope of ever catching up. Head Start differed from earlier

kindergarten social reforms in its broader scope, and was innovative in that it was federally funded.

Project Head Start did not limit itself strictly to the educational activity within the classroom. It also concentrated efforts in the areas of nutrition, medical care, and social services. As a result, Head Start brought about two important changes in the role of early childhood education: it shifted the emphasis of early childhood education from a luxury for the economically comfortable to an important educational component for all children; and it helped demonstrate that early childhood education programs could have a positive effect in areas of broader social concern.

The last two decades have witnessed a shift toward more academically oriented kindergarten programs. In 1985, Educational Research Service conducted a study of kindergarten programs and practices in American public schools. In the study, ERS asked principals and kindergarten teachers about program scheduling and curriculum emphasis. Twenty-seven percent of the responding principals reported offering a full-day, every day kindergarten program.[Gardner 1986, 46] This represented a significant growth from the 3.5 percent of kindergartens reportedly offering full-day, every day classes in 1961.

Regarding curriculum emphasis, ERS reported that 22 percent of the responding teachers and 29 percent of the responding principals described their kindergarten's *primary focus* as academic skills and achievement. An additional 62.9 percent of responding teachers and 62.6 percent of responding principals reported that the primary focus of their kindergarten was academic readiness and preparation for later schooling.[Gardner 1986, 56-58] These results indicated that kindergartens were viewed by practitioners as an important part of the child's academic development.

Over the last 10 years, there has been much debate within education over which schedule is the most appropriate for kindergarten children: the traditional half-day kindergarten, full-day, or alternate day. The debate has centered on questions such as: Are five-year-old children mature enough to attend kindergarten class all day? Do full-day kindergarten children show significantly greater academic achievement than half-day children? Is the difference in scheduling effects (if any) identical for advantaged and disadvantaged children? How do parents and teachers feel about full-day kindergarten as compared to the half-day?

These and other relevant questions are the focus of the balance of this report. A number of studies have been conducted over the last 10 to 15 years addressing these issues. This report represents a systematic examination of these studies, so that the reader may have access to the latest research findings concerning the effects of kindergarten scheduling on children, parents, and educators.

A Review of National Surveys of Kindergarten Programs and Practices

1925 NEA Survey

METHODOLOGY AND SAMPLE:
Direct observation of kindergartens in 137 schools in 34 states.
Questionnaire replies from 535 teachers and 162 administrators.

- The kindergarten was being considered an integral part of the public school system.
- The kindergarten day devoted 36 percent of the day to physical education, 33 percent to the general arts, 16 percent to general assemblies, 9 percent to literature and language, and 6 percent to music.
- There was evidence of nearly as many afternoon sessions as morning sessions.
- Beginning number work and reading were part of the kindergarten curriculum in some schools.
- The most popular entrance ages were four and five years, with mental age often being used in combination with chronological age to determine promotion from kindergarten.

1961 NEA Survey

METHODOLOGY AND SAMPLE:
Questionnaire replies from a nationwide sample of 385 public school principals, 281 public school kindergarten teachers, and 161 private school kindergarten teachers.

- Almost 90 percent of the respondents reported a half-day schedule with morning and afternoon sessions, while only 3.5 percent reported an all-day session with the same pupils.

- The median class size for a morning and afternoon sessions was 28 pupils; for the all-day session, 32 pupils.

- 80 percent of all respondents reported there were no classroom assistants in their kindergarten.

- The median minimum age for admission to kindergarten was four years, eight months.

1967 NEA Survey

METHODOLOGY AND SAMPLE:
Questionnaire replies from 958 public school systems, stratified by enrollment.

- Of all school systems operating kindergartens, an estimated 64 percent conducted two half-day sessions; 21.2 percent had a morning session only; 1.5 percent had an afternoon session only; and almost 10 percent conducted a full-day session with the same pupils.

- The most frequently mentioned minimum age for admission to kindergarten was in the range of from four years, eight months to five years of age.

- The estimated percent of systems providing curriculum experiences in the following areas were: number relationships, 95.3 percent; art, 94.5 percent; health, 89.5 percent; physical education, 88.2 percent; social studies, 84.7 percent; science, 84.4 percent; reading, 83.9 percent; music, 83.5 percent; and language arts, 83.2 percent.

- An estimated 78 percent of the school systems retained kindergarten pupils sometimes, while almost 12 percent practiced acceleration of pupils to the next grade.

1985 ERS Survey

METHODOLOGY AND SAMPLE:
Questionnaire replies from a nationwide, random sample of 1,082 kindergarten teachers and 1,228 principals in public schools having kindergarten programs.

- A majority of principals (65.6 percent) reported their school had a half-day schedule for kindergarten pupils, while 27.0 percent reported having a full-day schedule, and 7.9 percent reported having an alternate day schedule.

- The median kindergarten pupil was in class an average of 3 hours and 48 minutes each school day.

- 58.4 percent of responding principals reported that there was a screening or examination of the children prior to their assignment to kindergarten.

- The most common admission requirement to kindergarten reported by principals was minimum age, with 64.3 percent indicating the potential pupil must be five years of age before October 15.

- The most common evaluation practice reported by principals was a checklist of learning objectives, with a report being sent home to parents an average of four times a year.

- Reporting kindergarten teachers indicated that an average of 41.0 percent of their pupils had had a full year of day care, preschool, pre-kindergarten, and/or nursery school experience.

- 60.6 percent of all responding kindergarten teachers indicated that they followed definite time allotments and sequences for each activity in their daily program.

- Teachers and principals were asked to select from a list the one statement that best described the primary focus of their kindergarten program. The following were their responses:

	Principals	Teachers
Preparation (preparation for later schooling)	62.6 percent	62.9 percent
Academic (academic skills and achievement)	22.0 percent	29.0 percent
Developmental (personal and social development)	8.1 percent	5.2 percent
Compensatory (for disadvantaged pupils)	0.5 percent	0.6 percent

- Almost half of the principals (49.6 percent) reported their school district's policy toward the teaching of reading as "reading skills should be taught to pupils who show readiness and ability; but reading skills should not be stressed for pupils who are not ready to read"; 61.1 percent of teachers reported that this same policy reflected their personal opinion about the teaching of reading in kindergarten.

- A commercial reading readiness series was used by three-quarters of the reporting teachers; 35.0 percent indicated that they used a reading series.

- The most highly structured subject areas ("instruction through formal classroom procedures") reported by kindergarten teachers were reading and mathematics.

- 41.2 percent of reporting kindergarten teachers held a master's degree.

- The typical teacher was a 40-year-old woman, who had taught kindergarten for eight years of a total of 12 years teaching experience.

- The factors most commonly identified as major problems by kindergarten teachers were lack of time for individual instruction/guidance, too many students per class, too much paperwork/lack of planning time, and limited time for enrichment activities.

- 48.0 percent of kindergarten teachers reported the assistance of a paid teacher aide in the classroom.

- Special service personnel most frequently mentioned as available to assist kindergarten pupils on a regular basis were: speech therapist, librarian, nurse, music teacher, and physical education teacher.

- The median class size for a morning class in a half-day schedule for kindergarten teachers was 23 pupils, and for an afternoon class was 22 pupils. The median class size for a full-day class was 25 pupils.

- The average pupil/teacher ratio reported by principals (for both full-day and half-day sessions combined) was 23 pupils per teacher.

- In the opinion of responding kindergarten teachers, the most effective class size (median) for a full-day class was 20 pupils.

- 17.5 percent of the reporting principals indicated their school had a transitional room (a junior first grade) for pupils completing kindergarten who were not ready for the first grade.

Recent Reviews of the Literature

Since 1980, almost 40 studies have been published comparing the effects of full-day, alternate day, and the traditional half-day kindergarten. Concurrent with the increase in the number of studies, the portion of kindergartens that operate on an extended day schedule has risen from less than 10 percent in 1969 to 31 percent in 1982, [McConnell and Tesch 1986, 48] and 35 percent in 1985.[Gardner 1986, 47]

With the proliferation of kindergarten studies, there have been several reviews of the empirical literature in recent years. It is important to consider these analyses before deciding which of the three kindergarten schedules best serves the specific needs of students, parents, and teachers within particular communities.

Generally, the literature reviews fall into two categories: those that find the kindergarten studies sufficiently valid in their designs and conclusive in their findings to permit drawing sound conclusions, and those that find most of the kindergarten studies lacking in design, control, or conclusiveness.

Peskin (1987) noted that the trend toward all-day kindergarten continues, but stated her conviction that the movement was not warranted by sufficient evidence. She concluded that those who found the evidence of full-day kindergarten's advantages over the other schedules convincing were "wishing" it so.[:17] Specifically, she wrote that inadequate control had been exercised over pupil selection in most of the studies. She also contended that most existing kindergarten studies neglected to control for time. "The total time provided for each kindergarten program should have been the same by the end of the school year," Peskin wrote.[:17] She concluded that the lack of controls over student selection and the time factor rendered comparisons of different kindergarten schedules so inexact that schools would be wise to maintain half-day programs where they were still in use.[:19]

Karweit (1987) concurred with Peskin that the majority of kindergarten studies did not adequately control for student selection. Karweit considered 20 studies in her review, stating her opinion that 17 of them employed pre-existing "convenience" samples.[:7] Thus, in her opinion it was impossible to conclude that the higher achievement of full-day

pupils—as measured by various instruments in those studies—was due to the treatment rather than to sampling bias. Karweit's other criticism was that the authors of the kindergarten studies failed to take into consideration the shift in emphasis from social to academic which often accompanies the change from half- to full-day kindergarten. Consequently, she questioned whether the improved performances of the full-day pupils were due to the length of the school day, or to the accompanying shift in program emphasis. She then raised the possibility of achieving the full-day students' academic results at less expense simply by introducing an academic focus into a half-day schedule.[:32]

In 1983, Leonard and McIntire reviewed the research then available on the effects of kindergarten scheduling on pupil achievement and personal/social development. They concluded that it was impossible to recommend one schedule over another based on the studies, writing that relatively few "have sound empirical foundations and the reported results are equivocal."[:310] Regarding student achievement, the authors wrote that the studies' results were conflicting. However, when full-day (every day) and alternate day (full-day) studies were separated out, differences emerged. No significant difference was reported in achievement between half-day and alternate day kindergarten pupils. However, there were significant differences in favor of full-day every day programs over half-days, particularly for disadvantaged students.[:311-12] Leonard and McIntire were also wary of drawing conclusions about students' personal/social development. This was because the studies based their findings on parent/teacher opinion surveys, rather than on direct observation of the children.[:312]

Puleo (1986) reviewed a number of kindergarten studies and found convincing evidence that full-day kindergarten produced significantly greater gains than half-day kindergarten, and that these gains were likely to be enduring.[:36] Puleo particularly emphasized gains made by full-day pupils in the basic skills area. "While use of stronger research methodology is needed for virtually all effects aside from basic skill acquisition," he wrote, "there are indications of positive outcomes in social, emotional, and developmental skills; staff reaction; and reduction of grade retentions."[:33] Puleo acknowledged that control of variables such as sample selection have commonly posed difficulties. Nevertheless, the quality and the quantity of research favoring the full-day schedule are such that they carry important messages for school districts that are considering implementing full-day programs.[:32]

In 1988, Puleo published another review in which he re-stated his belief in the positive effects of full-day kindergarten. This review included 19 studies conducted between 1974 and 1985. He concluded that full-day kindergarten provides academic benefits to children, particularly those from low socio-economic status groups [:430-431] In addition, Puleo's study of the research literature led him to conclude that neither child fatigue nor any social ill-effects resulted from attendance at all-day programs.

Puleo reported that parents tended to prefer the kindergarten schedule in which their children were already enrolled; parents of children in half-day kindergarten tended to prefer the half-

day, and so on. Puleo concluded that most parents did not want their children's schedule to be changed.[:433] Most teachers reportedly reacted quite favorably to the full-day schedule. Puleo quoted one study as concluding that "teachers appreciate the opportunity to provide a more fully developed program with the extra time available in the full day."[:433]

Stinard (1982) reached similar conclusions in his literature review. He conceded that "ideal research designs are difficult to achieve . . . in actual teaching situations."[:5] He saw a need for further research to correct for the problems of selection and lack of systematic control of teachers and curricula. Stinard found that these problems were not uncommon among the 16 studies he reviewed. He concluded, however, that each of the studies cited in this review exhibited enough research control to warrant "judicious consideration" as school districts evaluate the different kindergarten schedules. Whatever difficulties plague the kindergarten studies, the alternative, Stinard observed, would be to base decisions solely on "finances, personal experience, and speculation."[:5] A decision made on those bases would exclude the vital issues of achievement, personal development, and teacher and parent reactions which were addressed in these studies.

One very significant point remains. There was consensus among the reviewers that full-day kindergarten was superior to half-day kindergarten for educationally disadvantaged and low-income children. Peskin wrote that federally funded all-day programs designed specifically for at-risk children had yielded "empirical research" substantiating the point.[:17] Karweit concluded that while the source of the benefits to disadvantaged children remained unclear, kindergarten studies dealing with such children were sufficiently valid to conclude that there were benefits nonetheless.[:33] Leonard and McIntire wrote that more research on the subject was necessary, but that there were indications of benefits to educationally disadvantaged children in full-day kindergartens.[:311-12] Puleo concluded that full-day kindergarten was potentially beneficial to children of all backgrounds, but that it appeared "most effective with educationally disadvantaged groups."[1986 :35]

The developing consensus that full-day kindergarten benefits at-risk children from low-income groups may become increasingly important in the near future. This is because a growing proportion of young students will be coming from these very groups. With a larger share of the future American workforce being composed of disadvantaged children, full-day kindergarten may prove helpful in developing American manpower to the greatest extent possible.

Full-Day vs. Half-Day Schedule

In the mid-1970s, researchers in early childhood education began to seriously investigate the possible effects of the full-day versus the half-day kindergarten schedule on the academic, cognitive, and socio-emotional development of young children. Since the rapid growth of full-day kindergarten is a phenomenon of the 1980s, the research is rather recent, and some of the findings may be tentative.

This chapter summarizes 37 studies that compare various effects of full-day and half-day kindergartens. Thirty-two studies compared the academic effects, nine studies compared the social effects, 14 compared parental preference effects, 13 compared teacher preference effects, and six compared principal preference effects. Most of the studies simultaneously examined several effects.

Academic Achievement

RESEARCH FINDINGS FAVORING FULL-DAY KINDERGARTEN

Twenty studies found some results that favored the full-day schedule in academic achievement (Winter and Klein 1970, Alper 1979, Adcock and others 1980, Humphrey 1980, Humphrey 1983, Humphrey 1988, Oliver 1980, DeRosia 1980, McClinton and Topping 1981, Nieman and Gastright 1981, Warjanka 1982, Campbell 1983-84, Lotowycz 1984, Anderson 1985, Madison Metropolitan School District 1985, New York City Board of Education 1985, Bornstein 1985, Brierley 1987, Pasco School District 1987, and Jones and others 1988).

Seven studies measured the effects of full-day kindergarten on the achievement of educationally disadvantaged children. All seven reported significant differences in favor of full-day programs.

Lysiak and Evans (1976), using the *Boehm Test of Basic Concepts* as a pretest and the *Metropolitan Readiness Test* as a posttest, documented significant academic gains for both black and white children from disadvantaged backgrounds.[:17; 21]

Alper (1979) used the *Metropolitan Readiness Test (MRT)* to measure the greater gain scores in reading skills among full-day kindergarten pupils.[:63]

Warjanka (1982) administered the *MRT* to 40 average children attending traditional half-day kindergarten, and 30

severely deficient children attending full-day sessions. The *MRT* was given after six months of the treatment, with the result that the full-day children had attained the same readiness level as the more able half-day children.[:8]

Jones and others (1988) identified 30 kindergarten students who, in the opinions of their teachers and a special School-Based Assistance Team, were at a high risk for academic failure. Eighteen of these children were selected for full-day treatment, and the remaining 12 made up the half-day control group. The children were pretested on a locally constructed instrument in three major areas: cognitive maturation, physical maturation, and social/emotional maturation. The students spent 158 minutes of instructional time in each half-day session. Students in the full-day program had lunch and recreational time before receiving an additional 158 minutes of instruction. The afternoon session was a repetition of the morning's lessons.

On the subsequent posttest, the full-day children showed significant improvement in two of the three areas: cognitive and physical maturation. Standardized gain score analysis showed the full-day children scoring significantly higher than the half-day children.[:5] The authors of the study emphasized that since the intervention was essentially to repeat the morning's work, "simple double scheduling" might prove a cost-effective way to remediate at-risk kindergartners.

The Pasco (Washington) School District #1 (1987) conducted four studies between 1982 and 1987 in order to assess the relative advantages of half-day, alternate day, and full-day kindergarten schedules. The subjects were given several standardized examinations, including the *Peabody Picture Vocabulary Test*, the *Wide Range Achievement Test*, and the *California Test of Basic Skills*. The cumulative findings indicated that full-day kindergarten was "far more effective" than either of the other two models for both poor and non-poverty children.[:ii]

The alternate day and half-day models yielded no effectiveness differences for children from above poverty backgrounds. However, alternate days were significantly better than half-days for children from poor backgrounds.[:ii]

In an effort to determine whether the benefits of full-day kindergarten justified the additional cost, Winter and Klein (1970) compared the academic performance of six educationally disadvantaged pupils and 26 educationally advantaged pupils in full-day kindergarten with a control group in half-day. There was no significant difference between the advantaged children attending different schedules. However, there was a significant difference among the disadvantaged children in favor of the full-day program, as measured by the *Metropolitan Readiness Test.* Results from the *Stanford Early School Achievement Test* evidenced that these differences were maintained one year later.[:18] Similarly, Lysiak and Evans (1976) reported that full-day kindergarten was especially advantageous for children from low SES groups.[:31-32]

The New York City Board of Education (1985) simultaneously tested English-speaking children with poor readiness skills in full-day and half-day classes for academic improvement, and Spanish-speaking children for improvement in English language proficiency. In each instance, the results showed a

significant difference in favor of the full-day program.[:21; 26]

Four studies assessed the long-term benefits of full-day kindergarten. Humphrey (1983), in a follow-up to his 1980 study, reported that pupils who had attended full-day kindergarten in 1979-1980 had a consistently higher percentage of satisfactory marks in school, and a lower percentage of unsatisfactory marks, than pupils who had attended half-day kindergarten.[:95]

In 1988, Humphrey published a second follow-up which sought to identify any lasting benefits of full-day kindergarten among the students whom he had originally studied in 1980. He reported that the students who had attended full-day kindergarten in 1979 and 1980 scored significantly higher on a battery of standardized tests in grades three, five, and seven than former half-day students. He also reported that former full-day pupils earned the higher report card marks in the primary and middle grades.[:148]

Nieman and Gastright (1981) sought to document even longer-range benefits of full-day kindergarten. They tested students following their kindergarten year, and after the fourth and eighth grades, and reported that students who had attended full-day kindergarten programs consistently scored higher on the *Metropolitan Achievement Test* at all three grade levels. The researchers also found that students who had participated in full-day kindergarten subsequently experienced fewer grade retentions and special class assignments.[:4-6]

The New York City Board of Education (1988) followed up its 1985 study on the effects of scheduling on kindergarten children. In its original study, the board reported results favoring full-day kindergarten. However, the 1988 study reported that there were no meaningful long-term academic benefits to full-day kindergarten at the third-grade level.[:30] *Nevertheless, the board recommended that full-day kindergarten be continued* because it had resulted in the enrollment of "a substantial number" of children into the public schools who would otherwise have delayed entry until the first grade.[:32]

Ten studies employed various methods to document superior academic achievement by full-day kindergarten pupils in general. They were: Winter and Klein (1970), Adcock and others (1980), DeRosia (1980), Humphrey (1980), Oliver (1980), Bornstein (1983), Campbell (1983-84), Anderson (1985), Madison Metropolitan School District (1985), and Brierley (1987).

Winter and Klein found no significant differences between advantaged half-day and full-day pupils as measured by standardized achievement tests. In terms of achievement in reading and math programs, however, the authors reported that full-day pupils reached far higher levels than did their half-day counterparts.[:18]

In Adcock and others, Campbell, and Anderson, kindergarten pupils were assigned to half-day or full-day programs specifically for the studies. Adcock and others administered the *Survey Battery of the Metropolitan Achievement Tests*. They found that full-day students scored significantly higher in math, reading, and language skills than half-day students. [:6]

Campbell conducted a two-year study in which the experimental and control groups were comparable in sex,

race, and academic readiness. The initial study, and a follow-up, measured greater academic achievement among the full-day pupils than among those in half-day in phonics, counting, and visual discrimination.[Report #2, 2]

In Anderson, two elementary schools selected experimental full-day groups. One group was selected from the more mature children; the other was a random sample. Two other schools selected matching control groups. *The Stanford Early Achievement Test* was given to all of the students. Anderson reported that the full-day students scored significantly higher on the test, regardless of how the groups were selected.[:7]

The remaining studies (DeRosia, Humphrey, Oliver, Bornstein, Madison, and Brierley) tested samples from pre-existing full-day and half-day student populations. Each of these studies reported differences in pupil performance favoring full-day kindergarten.

DeRosia found that full-day kindergartners had significantly higher basic concept development and personal/social development than half-day kindergartners.[:126] DeRosia also reported that on the *Wisconsin Design for Reading Skill Development*, there were no significant differences between children in the two schedules.[:128]. Nor was there any significant difference in the reading achievement of first graders as measured by the *Comprehensive Test of Basic Skills*.[:128]

Humphrey compared scores on the *California Achievement Test (CAT)* and the *Boehm Tests of Basic Concepts*, and found that full-day kindergarten pupils scored significantly higher than half-day pupils on nearly all measures. In addition, Humphrey reported that first-grade pupils who had attended full-day kindergarten scored significantly higher on the *Gates-MacGinitie Reading Tests* than the half-day graduates.[:90]

Oliver compared 61 pupils attending five half-day kindergarten classes with 98 pupils attending six full-day kindergarten classes on the *Murphy-Durell Pre-Reading Phonics Inventory Pretest and Posttest*, and on the *Clymer-Barrett Pre-Reading Battery*. He found that the full-day pupils did significantly better on both tests than the half-day pupils.[:164]

Bornstein drew random samples from already existing full-day and half-day kindergarten populations. Both groups were given the *CAT*, and their scores were compared for readiness in reading and math. The results yielded differences in reading and math readiness favoring the full-day pupils.[:6] Additionally, surveys revealed that 100 percent of the principals and teachers and 97 percent of the parents involved believed that the full-day kindergarten program was successful.[:ii]

The Madison Metropolitan School District compared the academic achievement of full-day and half-day kindergarten pupils over the course of a school year. Madison reported slight but consistent differences in favor of the full-day pupils. Also, parents of the full-day pupils reported greater satisfaction with their childrens' academic improvement, as well as improvement in problem solving and independence.[:68-69]

Brierley sampled 229 children enrolled in full-day kindergarten (FDK) and 300 enrolled in half-day programs. Using the *Metropolitan Achievement Test (MAT 6)* and classroom teacher assessments, Brierley sought answers to

four questions pertaining specifically to kindergarten scheduling:

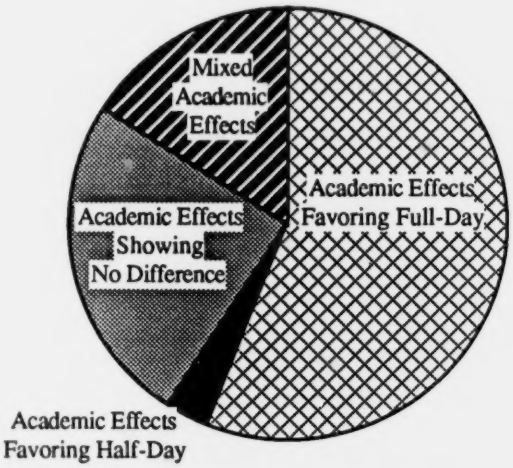
- Do students in FDK classes show more growth in reading than students in other classes?
- Do students in FDK classrooms show more growth in language than students in other classes?
- Do students in FDK classrooms score higher on a measure of written product than students in other classes?
- Do students in FDK exhibit different patterns of grades and social adjustments as reported on grade cards?[: 5-6]

Analysis of the results revealed significant differences favoring the full-day pupils in the areas of reading, language, and written products.[:7-12]

Not all of the full-day studies were designed specifically to measure test scores. McClinton and Topping (1981) wanted to identify any less quantifiable differences attributable to full-day kindergarten sessions. Accordingly, they selected 80 first-grade pupils, 40 of whom had been full-day kindergartners, and 40 of whom had been half-day kindergartners. Their first-grade teachers were then asked to evaluate the students without knowing who had attended full-day kindergartens and who had attended half-day. Despite the fact that the two groups of students had not scored significantly differently on a previously administered *California Test of Basic Skills*, the first-grade teachers judged the full-day graduates to be the more socially and academically capable first-grade pupils.[:40]

In Lotowycz (1984), kindergarten classroom teachers completed the *Perception Score Sheet* to evaluate the self-concept level for 208 children. The results showed a significant difference in favor of the full-day kindergarten pupils. [:87-88]

Figure 1


Mixed Academic Effects
Academic Effects Favoring Full-Day
Academic Effects Showing No Difference
Academic Effects Favoring Half-Day

Academic Effects in Studies Comparing Full-Day and Half-Day Kindergarten
n = 32

RESEARCH FINDINGS FAVORING HALF-DAY KINDERGARTEN

Five studies found at least one positive effect that favored half-day kindergarten over the full-day.

Lotowycz (1984) studied the achievement and self-concept gain scores of 112 full-day pupils and 74 half-day pupils. After a pretest ascertained the comparability of populations, the kindergarten pupils were administered the *Comprehensive Tests of Basic Skills (CTBS)*, composed of five subtests. The half-day pupils scored significantly

higher in the subject areas of word attack, vocabulary, and language expression. [:83-85]

DeRosia (1980) investigated whether extending the kindergarten day made a difference in the reading achievement of kindergarten, first-grade and second-grade pupils who attended different schedules. The sample for this study consisted of 160 kindergartners, 106 first graders, and 82 second graders. There were significant differences on the Study Skills strand and the Comprehension strand of the *Wisconsin Design for the Reading Skill Development (WDRSD)* in favor of the half-day pupils.[:129-130]

Humphrey (1980) compared former half-day and full-day pupils in basic skills, conduct marks, grade retention, and handwriting. Most of his results documented greater gains for the former full-day pupils. However, he did report that half-day pupils in 1979-80 outscored full-day pupils on the visual/auditory discrimination subtest of the *CAT*.[:47] In 1983 Humphrey conducted a follow-up study, which largely substantiated the superior performances of the former full-day students. In one area, handwriting, Humphrey found that the former half-day pupils outperformed their former full-day peers.[:93]

The New York City Board of Education conducted a 1988 follow-up of its previous study reported three years earlier. In the follow-up, third graders who had attended half-day kindergarten registered slightly higher reading achievement than those pupils who had formerly been full-day kindergartners. [:30]

Brierley (1987) examined the grades given by teachers to 229 full-day and 300 half-day children in areas related to personal/social growth. The author concluded that the half-day children had been more successful in acquiring three skills associated with personal/social growth: "works and plays well with others"; "follows classroom and school rules"; and "shows self-confidence." [:23]

RESEARCH FINDINGS REPORTING NO SIGNIFICANT DIFFERENCES

In each of 12 studies, there was at least one result which showed no significant difference between the full-day and half-day kindergarten schedules; (Winter and Klein 1970, Johnson 1974, Lysiak and Evans 1976, Hatcher 1978, Alper 1979, DeRosia 1980, Harman 1982, Evans and Marken 1983, Savitz and Drucker 1984, Dunn 1987, New York City Board of Education 1988, and Mongiardo 1988.) These studies reported on various academic/cognitive, affective, and psychomotor differences shown by children attending the two schedules.

Johnson (1974) conducted a three-year research project which gathered data on successive waves of kindergarten classes on different schedules. Each year the kindergarten classes were given a readiness test at the beginning and at the end of the school year, plus the *Stanford Early School Achievement Test* at the end of the school year. The investigator also collected data concerning first-grade placement and reading level attainments. An experimental and a control group of 20 pupils were composed of 10 boys and 10 girls,

disadvantaged children. Johnson found that even considering cultural factors, there were no statistically significant differences between the experimental and control groups. Therefore, the author could not recommend the full-day kindergarten on grounds of measurably greater academic achievement. [:50]

Winter and Klein (1970) and Lysiak and Evans (1976) both found that full-day kindergarten was beneficial to high-risk or disadvantaged children. However, each study observed that differences among advantaged children were statistically insignificant. Winter and Klein tested 55 advantaged children (26 in full-day kindergarten and 29 in half-day) on the *Metropolitan Readiness Test* and the *Stanford Early School Achievement Test.* The results revealed no significant differences between the experimental and control groups.[:18] Lysiak and Evans administered the *Boehm Test of Basic Skills* as a pretest and the *Metropolitan Readiness Test* as a posttest to 916 pupils from 111 classes. Like Winter and Klein, they discovered that the advantages of full-day kindergarten to at-risk children were not shared by middle-class children.[:31-32]

Hatcher (1978) addressed the ethnicity of pupils in a comparison of full-day and half-day classes, composed of Anglo and Mexican-American children. One hundred and ten kindergarten pupils, randomly selected from four school districts, were administered a battery of tests at the beginning and the end of the school year. Results of the study indicated "that the length of the kindergarten day is not the significant factor in the cognitive, affective, and psychomotor development of Mexican-American and Anglo kindergarten children."[:85]

DeRosia (1980) reported that the results from the *Wisconsin Design for Readiness Skill Development* showed no significant difference in the reading achievement of first graders by the kindergarten schedule they had previously attended. Neither did the author report any significant differences in reading achievement among second graders by previously attended kindergarten schedule as measured by the Vocabulary, Sentences, and Passages parts of the *Comprehensive Test of Basic Skills*.[:130]

To test the hypothesis that full-day kindergarten pupils would register more significant gains on the *California Achievement Test* than half-day pupils, Harman (1982) tested 66 children in experimental full-day sessions and 55 children in half-day groups. While the results showed higher achievement among the experimental group, the differences were not statistically significant. The author reported that the results supported her hypothesis.[:5] Due to the statistical insignificance of these differences, one cannot assert with confidence that the observed differences in achievement were due to the treatment.

Mongiardo (1988) also observed differences in favor of full-day kindergarten when she tested samples of first graders who were former full-day and half-day kindergartners. She observed these differences in results from the *Science Research Associates Achievement Series*. As in Harman's study, however, these differences were insignificant [:6], and are therefore perhaps not attributable to the full-day program.

Evans and Marken (1983) studied three successive cohorts of 174 first-grade, second-grade, and third-grade

pupils distinguished by their attendance in different kindergarten schedules. Overall, they found that there were no significant differences in academic achievement as measured by the *California Achievement Test*.[:32] They recommended that scheduling decisions be based on more pragmatic criteria.

Savitz and Drucker (1984) administered the *Tests for Analysis and Placement (TAP)* to 19 first graders; nine of whom had attended a half-day kindergarten and 10 of whom had attended a full-day kindergarten. There were no significant differences in the scores to indicate a higher degree of readiness for either group.[:11]

Dunn (1987) compared data on children from the first two years of a full-day kindergarten program with data on children from the last two years of the previous half-day program. The data were measures from a *Waupan* assessment of motor and verbal development and audio/visual perception, *Metropolitan Readiness Tests, Gates-MacGinitie Reading Tests, Iowa Tests of Basic Skills*, and demographic and school data. Dunn found that although the full-day schedule provided more learning opportunities, achievement scores of the two groups of children were not significantly different.[:12]

The 1988 New York City Board of Education follow-up study concluded by recommending that the full-day program be continued. Nevertheless, the study found no consistent and meaningful differences in reading achievement among second and third graders by length of kindergarten day previously attended. [:30]

Attitude and Behavior Survey Results

STUDENTS

Nine studies compared social effects, such as classroom behavior and attitude toward school, of children in full-day and half-day kindergarten. Six of the nine studies concluded the full-day was the more advantageous schedule (DeRosia 1980, McClinton and Topping 1981, Rose 1981, Lotowycz 1984, Madison 1985, and Jones and others 1988).

DeRosia administered the Boehm Test of Basic Concepts to 160 kindergarteners, 106 first graders and 82 second graders, who were divided into experimental and control groups. She reported significant differences favoring children from the full-day classes. [:126-127]

McClinton and Topping reported that first-grade teachers identified a random sample of former full-day kindergartners as being better socially adjusted than former half-day pupils. The teachers responded to such statements as: "In a stressful situation, this child will begin to cry: always, often, sometimes, seldom, and never."[:40]

Rose observed 17 children "in a naturalistic setting" to test their socialization skills. Four children were selected from this group as representative case studies. A three-member panel concluded that full-day kindergarten had a positive effect on the socialization of the four subjects.[:106]

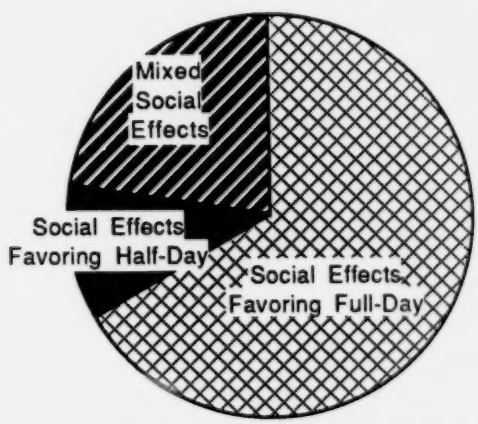
In Lotowycz, teachers completed the *Perception Score Sheet* to evaluate student self-concept. Data analysis revealed differences favoring full-day in the following catagories: "Self Gene-

rally", "Self as Instrument", "Self with other Children", and "Self with Adults." [:87]

In analyzing the results from the initial year of a pilot full-day kindergarten program in the Madison (Wisconsin) School District, testers interviewed teachers about their students' socialization. The teachers reported that full-day children had attained a greater level of independence that had half-day children. [:69] Parents of full-day pupils also reported greater satisfaction with their children's independence and appreciation of different cultures.[:68]

Jones and others identified 30 kindergarten students as being high-risk for failure. Eighteen of the children were placed in full-day kindergarten, while the remaining 12 composed the half-day control group. All the children were pretested and posttested on locally constructed instruments. The full-day students improved from "marginal proficiency" to "high average proficiency," while the half-day students remained marginally proficient.[:5]

Figure 2



Student Attitude and Behavior Effects in Studies Comparing Full-Day and Half-Day Kindergarten
n = 9

Two of the nine studies of social effects produced mixed results. Bagley (1974) observed a random selection of 10 full-day classes, 10 half-day morning classes, and 10 half-day afternoon classes from schools in three school districts. Bagley concluded that children spent a significantly greater portion of their time in free play and small group activities in half-day classes than in full-day classes. Simultaneously, full-day classes spent more time in teacher-directed and stationary activities, and set aside more time for resting than did half-day classes.[:188-89]

Campbell (1983-84) reported that on most items of an attitude survey, children in half-day and full-day kindergarten displayed no significant differences. However, on the item "Most of the time, I like to come to school," a significantly higher percentage of half-day students answered affirmatively. [Report #1, 8]

One of the nine studies concluded that half-day kindergarten was more socially advantageous than full-day. Brierley (1987) examined the teacher assessments of 229 full-day and 300 half-day children in areas related to personal/social growth. The author concluded that the half-day children had been more successful in acquiring three skills associated with personal/social growth: works and plays well with others; follows classroom and school rules; and shows self-confidence.[:23]

PARENT ATTITUDES

Fourteen studies queried parents' attitudes toward the full-day schedule. Ten of them reported parental preference for full-day kindergarten (DeRosia 1980, Humphrey 1980, Humphrey 1983,

Humphrey 1988, Campbell 1983-84, Graja 1984, Fairfield Public Schools 1984, Bornstein 1985, Anderson 1985, and Madison Metropolitan School District, 1985).

DeRosia (1980) distributed two parental questionnaires concerning parents' attitudes toward their children's development. Parents of full-day kindergarten students had a more positive attitude about their children's development than did parents of half-day students. The author added that although these data were significant, their generalizability was limited.[:127]

Humphrey (1980) received completed questionnaires from the parents of 131 full-day pupils and 119 half-day pupils. Ninety-two percent of the full-day parents indicated that they preferred a full-day over a half-day kindergarten program, while 53 percent of the half-day parents reported that they would select the full-day if given a choice. In the initial follow-up study (1983), only two percent of the full-day parents reported that they preferred the half-day kindergarten schedule.[:37] In 1988, Humphrey found that an overwhelming majority of parents with children in full-day kindergarten—92 percent—still preferred that schedule.[:63]

Campbell (1983-84) mailed a survey instrument to a random one-third sample of all parents in the district with children in kindergarten. One hundred twenty-three were sent out, and 70 percent (86 completed instruments) were returned. The parents of children in full-day believed that their children learned more in the all-day setting and were satisfied with their children's kindergarten experience. Eighty-six percent of these parents said that they would recommend full-day kindergarten. Parents of half-day children were not explicitly asked whether they would recommend full-day kindergarten. However, most of them did say that full-day should be an option for those parents who wish to choose it for their own children.[Report #1: 9-10]

A few parents questioned a five-year-old's physical and emotional fitness for the added hours spent in the classroom each day. One parent suggested that the issue "*should not be the length of the day, but the quality of the kindergarten curriculum.*"[Report #1, 11] (Emphasis in original document.)

Fairfield (Connecticut) Public Schools (1984) queried all parents of kindergarten pupils after they instituted a pilot full-day program in the schools. Overall, the parents commented favorably concerning pupil learning objectives, program organization, and personal opinions about the full-day program. [:5-7]

Graja (1984) reported strong parental support for full-day kindergarten. He noted, however, that most of the pressure from parents to institute and maintain the full-day schedule was due to the social necessities wrought by single-parent households and families in which both parents were employed outside of the home.[:108]

Bornstein (1985) reported that 97 percent of the parents responding to her survey of "least ready" five-year-olds were positive about their children's full-day kindergarten.[:ii] Representative of the majority opinion are the following statements:

- As a parent I was very impressed with the EDK [full-day] program. It is imperative that this program is continued.

I truly enjoyed watching my child learn and grow through the EDK program.

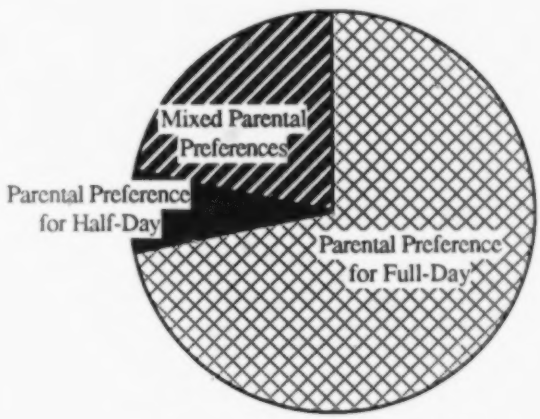
- As a result of EDK my child has developed independence, confidence, and an interest in learning.[:9]

Anderson (1985) mailed a questionnaire to parents of 51 full-day kindergarten children and 39 half-day children. All 51 of the parents of full-day students responded that they preferred full-days over half-days. Among the reasons given by these parents were: the more rigorous academic program permitted by a longer day; the greater social development that a longer day encouraged; that full-day kindergarten builds a stronger foundation for future learning; the reduced need for after-school child care; and the enhanced self-esteem that comes from successfully meeting challenges early in life.[:8-9]

Eighteen of the 36 responding parents with children in half-day preferred that schedule, while 18 said that they would have preferred to send their children for a full day. Parents who preferred the half-day schedule explained: five-year-olds are not ready to be in school all day; children of that age still need more nurturing at home; young children lack the necessary stamina to attend full-day; children benefit from the unstructured time at home.[:9]

Madison public schools (1985) received responses from 381 of 822 parents or guardians who had children enrolled in kindergarten.[:48] At the end of the school year, all of the parents were asked, "If you had a choice now, which program would you choose for your child?" Ninety percent of the full-day parents said they would choose full-day for their children, four percent would choose half-days, and four percent were unsure. Forty-four percent of the half-day parents said they would choose half-day again, 36 percent said they would choose full-day, and twenty percent said they were unsure of their choice.[:53]

Figure 3



Parental Preference Effects in Studies Comparing Full-Day and Half-Day Kindergarten
n = 14

One study found that parents preferred the half-day kindergarten schedule. The Wisconsin State Department of Public Instruction (1980) assisted an elementary school in gathering data on all three types of kindergarten schedules. The school sent surveys to 158 parents within the district who would have children in kindergarten in the next three years. Most of the responding parents in this district preferred the half-day schedule to the full-day. Their comments indicated that they believed that half-days were better suited to a five-year-old's

maturation level. These parents' second choice of schedule was the alternate day. That choice was apparently influenced as much by the need for babysitting and busing services as by the needs of the students.[:4]

Cieslukowski (1981), Salzer (1982), and Evans and Marken (1983) reported mixed results from parents.

Cieslukowski (1981) was directed to secure information on the benefits of the full-day kindergarten program. He discovered that a Connecticut school district had surveyed parents after instituting a full-day program in five schools. The following are two representative parental opinions expressing opposing views of the full-day program:

> I felt that my child was ready for full day kindergarten. He would have been bored otherwise. He thoroughly enjoyed full day kindergarten. I don't think it is for every child, but my son has learned a great deal.[:32]

> A 5 or 6 year old child needs a more gradual introduction to education—parents should spend the extra half day with the child in constructive ways. Some parents leave the entire job of education up to the schools—a full-day kindergarten might further encourage this. [:34]

Salzer (1982) specifically wanted to investigate middle-class parents' attitudes toward the all-day kindergarten. He surveyed families with young children in three small town and suburban school districts with middle-class populations. Salzer interpreted his findings as showing that a large number of the parents were opposed to the full-day kindergarten schedule:

> In one case, of 505 respondents, 40 percent judged the all-day alternative unacceptable (Amherst, New York Schools, 1980). In a second district with 414 respondents, 30 percent opposed any change from the existing half-day schedule (Grand Island, New York Schools, 1980). Another district with 159 families surveyed found 40 percent preferring the half-day kindergarten and most of that group opposed to any change (Fredonia, New York Schools, 1980).[:1]

Evans and Marken (1983) surveyed the parents of both full- and half-day kindergarten children in order to gauge their attitudes. The results showed that parents generally preferred the schedule that their child was enrolled in. Eighty-four percent of full-day parents responded that kindergarten programs in general should be full-day, compared to 28 percent of the half-day parents. When asked if, given a choice, they would send their child to an all-day kindergarten, 68 percent of the all-day parents replied affirmatively, compared to only 35 percent of the half-day parents.[:37-40]

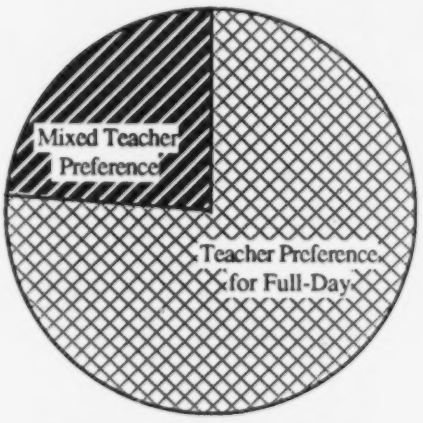
TEACHER AND PRINCIPAL ATTITUDES

Thirteen studies solicited teachers' and principals' opinions of differing kindergarten schedules. Among the teachers, 10 studies showed a preference for full-day kindergarten, and three reported mixed results. Among the principals, five studies reported a preference for the full-day schedule, while one reported mixed results. None

of these studies reported a preference for half-day over full-day among teachers or principals.

Ten studies reported teacher preference for full-day kindergarten. (Smith 1974, Humphrey 1980, Wisconsin 1980, Humphrey 1983, Humphrey 1988, McClinton and Topping 1981, Cieslukowski 1981, Campbell 1983-84, Fairfield Public Schools 1984, Graja 1984, Bornstein 1985, Anderson 1985, and Madison Metropolitan School District 1985).

Figure 4



Teacher Preference Effects in Studies Comparing Full-Day and Half-Day Kindergarten
n = 13

Smith (1974) examined staff attitudes toward a new full-day program instituted by the school district in place of the previous half-day program. Surveys were sent to all 38 kindergarten teachers and 19 principals involved in the program. Results indicated that "a large majority of the teachers favored continuing the kindergarten program on a full-day schedule rather than a half-day program."[:4] Of the principals, 15 wanted to continue the full-day program and four wanted to return to the traditional half-day program.[:8].

Humphrey (1980) found that kindergarten teachers had favorable attitudes toward the full-day program, although some first-grade teachers remained undecided about extending the kindergarten day. In Humphrey's 1983 follow-up study, however, 25 primary teachers in grades one, two, and three completed an opinionnaire, and the majority indicated that full-day was superior to half-day for the kindergarten program. In 1988, Humphrey recorded the following comments from teachers regarding full-day classes:

- Full-day is a more relaxing situation. You do not feel so rushed. If a morning project is not completed, there is time in the afternoon to complete it.
- In disadvantaged areas all children receive a good noon meal.
- First grade teachers feel that the children are well prepared. [:48-49]

McClinton and Topping (1981) reported that first-grade teachers consistently selected former full-day kindergarten children as being more capable first-grade students than former half-day children.[:39-40]

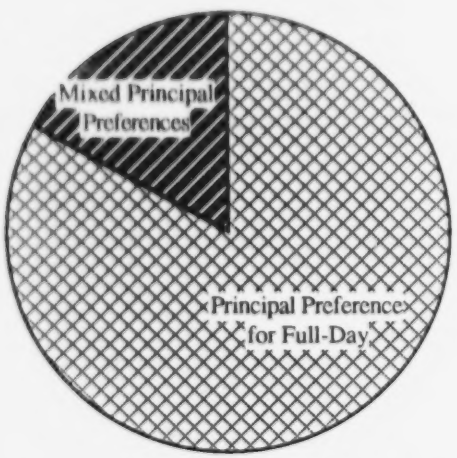
Cieslukowski (1981) asked principals, *via* a national educational magazine, to send in any pertinent information on innovative full-day kindergarten programs. He received 35 responses from schools nationwide. On

the whole, the response to full-day kindergarten was favorable. However, some principals reported fatigue among pupils in the afternoon and felt the extended day was inappropriate for less mature pupils.[:B 3-4]

Each of the three elementary principals involved in Campbell's study (1983-84) responded positively about full-day kindergarten. The chief advantages cited by the principals were: more student cohesiveness in class; better socialization; earlier detection and assistance for children with difficulties, and more emphasis on math, language, science, and social studies.[Report #1, 11]

The major disadvantages cited by these principals were less release time for the teachers and student fatigue. The principals' suggestions included adding a full-time aide for each teacher. [Report #1: 11]

Figure 5



Principal Preference Effects in Studies Comparing Full-Day and Half-Day
n = 6

Fairfield Public Schools (1984) sent surveys to all the professional staff (kindergarten teachers, principals, and program leaders) associated with a pilot full-day program in their school system. The staff "seemed to have positive feelings about student progress in the areas of building confidence, developing enthusiasm toward school and learning, adjusting to new situations, working and playing well with peers." The staff noted that additional instruction time was allotted to language development, creative writing, and social studies during a full day. Reading and math were not given extra time during the extended day because those subjects were already a substantial part of the half-day kindergarten program.[:7]

Graja (1984) selected a nationwide sample of 136 schools that had full-day programs. The 61-item survey instrument addressed a number of research concerns. From the responses of the administrators, Graja concluded that: implementation of full-day kindergarten appeared to be based on other than academic considerations; full-day kindergarten received strong support from administrators, teachers, and parents; parents who sent their children to full-day strongly desired formal reading and math instruction for them; total group instruction dominated full-day kindergarten; and few full-day programs were formally evaluated.[105-106]

Bornstein (1985) sent questionnaires to a representative sample of 10 principals and 10 teachers from the schools with full-day programs. The author received nine responses from the teachers, and 10 from the principals. Based on the results, she concluded that full-day kindergarten was an "overwhelming success."[:7]

Anderson's study (1985) included four classroom teachers: two full-day and two half-day. Anderson reported that both pairs of teachers believed that the schedule in which they were involved was a better schedule for children. [9-10]

In Madison (1985), full-day and half-day teachers reported the major advantages and drawbacks of the particular program in which they taught.

Full-day teachers cited the following advantages of a longer day:

- an expansion of opportunities to learn academic skills;
- more opportunities to practice activities that foster acquisition of academic skills;
- additional social interaction;
- increased sense of classroom community;
- the experience does not supplant first grade experiences.

The greatest perceived disadvantage was the lack of teacher access to support staff.[:20]

Half-day teachers reported that the greatest advantages of their program were:

- child's opportunity to be with the parent;
- a good introduction to school;
- a child's opportunity to learn in a non-school environment.

The greatest disadvantages cited by half-day teachers were:

- not enough time;
- too many children;
- inability to expand activities. [:21]

The Amherst Elementary School, with the assistance of the Wisconsin State Department of Public Instruction (1980), sent surveys to 150 kindergarten teachers and 75 principals in selected Wisconsin school districts and to a few randomly chosen districts throughout the United States. From the teacher survey results, the authors concluded that the majority of half-day and full-day teachers preferred the kindergarten program they were working in. The authors also concluded that, compared with half-day kindergarten, full-day kindergarten provided the time to better prepare children for the first grade; and that further, both full-day and half-day kindergartens were preferable to the alternate day schedule. [:12]

From the principals' responses, the authors concluded that while full-day programs were the most expensive of the three kindergarten schedules, they also best met curriculum needs. Conversely, alternate day kindergarten was the least expensive to operate, yet it was also the least desirable program. The principals also reported that the half-day kindergarten posed the greatest busing difficulties, and full-day posed the least.

Synoptic Table Related to the Full-Day Schedule

STUDIES COMPARING FULL-DAY AND HALF-DAY KINDERGARTEN SCHEDULES

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Winter and Klein [1970]	To investigate whether the benefits of extending the kindergarten day justify the cost.	Compared six "educationally disadvantaged" and 26 "educationally advantaged" children in extended-day kindergarten with a control group of half-day children.	For the "educationally disadvantaged" pupils in extended day, it was found that their achievement scores were far higher than those in half-day, and that the differences remained one year later. For the advantaged children, there were no differences on standardized tests, but the full-day children had higher classroom achievement than half-day children.	MX+	Ø	Ø	Ø	Ø
Bagley [1974]	To study the proportion of time allotted to activities in full-day and half-day classes.	Observed random samples of 10 full-day, 10 half-day morning, and 10 half-day afternoon classes.	Half-day classes spent a significantly greater portion of time in free play and intellectual activities, while full-day classes spent more time in stationary and teacher-directed activities.	MX	MX	Ø	Ø	Ø
Johnson [1974]	To compare differences in achievement between full-day and half-day kindergarten children.	Matched groups of 20 full-day and 20 half-day pupils each year, for three successive years.	Results from readiness and achievement tests revealed no significant differences between the two groups.	ND	Ø	Ø	Ø	Ø
Smith [1974]	To ascertain kindergarten teachers' and principals' reactions to a full-day program which was instituted.	Surveyed 38 kindergarten teachers and 19 principals in one school district.	"A large majority of teachers" and 15 of 19 principals favored continuing the full-day program. Both groups expressed general satisfaction with the progress of the pupils in the full-day program.	Ø	Ø	Ø	FD	FD

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results show a significant difference *in favor of Full-Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Lysiak and Evans [1976]	To compare the relative effects of full-day and half-day kindergarten on pupils of various backgrounds.	Administered achievement and readiness tests to a random sample of 916 pupils of differing socio-economic backgrounds from 111 classes, in one district.	Full-day kindergarten benefitted low SES children, but did not improve cognitive readiness among middle-class children.	ND+	Ø	Ø	Ø	Ø
Hatcher [1978]	To assess the cognitive, affective, and psychomotor effects of kindergarten schedules on children of differing ethnic backgrounds.	Administered readiness, personality, and developmental tests to 110 randomly selected kindergarten children of different ethnic backgrounds, sexes, and schedules.	Length of day was not a significant factor in the cognitive, affective, and psychomotor development of Mexican-American or non-Mexican-American children.	ND	Ø	Ø	Ø	Ø
Alper [1979]	To determine the effect of full-day kindergarten on the reading readiness of children from low SES backgrounds, and to assess the influence of ethnicity on reading readiness.	Compared nine groups of 12 lowest achieving children assigned to a full-day program to matched half-day groups. Also, compared two randomly selected groups of kindergartners assigned to each type of schedule.	In the first experiment, "there was a statistically significant difference between the mean vector gain scores in the reading skills composite scores" in favor of the full-day program. In the second, there were no significant differences in reading readiness by ethnicity.	FD+	Ø	Ø	Ø	Ø
Adcock and others [1980]	To compare the effects of kindergarten scheduling on academic achievement.	Administered achievement tests to 131 full-day and 58 half-day pupils.	Full-day children scored significantly higher than half-day children in math, reading, and language skills.	FD	Ø	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results show a significant difference *in favor of Full-Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
DeRosia [1980]	To determine the effects of full-day kindergarten on social and basic development skills, and on the later reading achievement of first and second graders. Also, to gauge parental reaction to full-day kindergarten.	The sample consisted of 348 pupils from four schools: 160 kindergartners; 106 first graders; and 82 second graders. They were matched in experimental and control groups.	Full-day children scored higher on basic concept and personal/social development measures. The effects on the reading achievement of first and second graders were mixed. Half-day pupils demonstrated better study skills and reading comprehension. Full-day parents had a positive attitude toward the program.	MX	FD	FD	Ø	Ø
Humphrey [1980]	To study the benefits of full-day kindergarten as compared to the traditional half-day. Also, to discern parents' preferences in kindergarten schedules.	Tested all full-day pupils who attended four pilot programs in one school district, and a random sample control group matched according to socioeconomic backgrounds, for two successive years.	Full-day children outperformed half-day children on every academic measure except auditory/visual skills. The differences favoring full-day persisted through first grade. Among parents, 92 percent with children in full-day and 53 percent with children in half-day preferred the full-day schedule.	MX	Ø	FD	FD	Ø
Humphrey [1983]	To see if the effects of full-day kindergarten persist as pupils enter third and fourth grades.	Reexamined all of the original children in the pilot program for the 1979 and 1980 school years, and all of the original control group for the same years.	Full-day children had a positive attitude toward the program, as did their parents and teachers. Later, as third and fourth graders, these same children tended to have higher mathematics and conduct marks, lower retention rates, and higher standardized achievement test scores than did former half-day kindergarten pupils.	FD	Ø	FD	FD	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Humphrey [1988]	To test for any longer term effects of full-day kindergarten.	Collected data from standardized test scores, report cards, school records, questionnaires, and interviews concerning students in the original 1979 and 1980 pilot program and control groups.	Full-day students had significantly higher achievement scores on reading readiness tests at the end of first grade; on reading tests in grades one, two, and three; and on a battery of standardized tests in grades three, five, and seven. Also, the former full-day students had higher report card marks in both the primary and middle school grades.	FD	Ø	FD	FD	Ø
Oliver [1980]	To determine the effects of extended instructional time on reading readiness.	Compared the pre-reading skills of 61 pupils in half-day and 98 pupils in full-day kindergarten.	Found that full-day pupils showed a significantly higher level of reading readiness than those in half-day.	FD	Ø	Ø	Ø	Ø
Wisconsin State Dept. of Public Instruction [1980]	To determine what kindergarten schedule is most advantageous to children in a rural school district.	Teacher and principal questionnaires were sent to selected school districts in and out of the state. Surveys were also mailed to parents of prospective kindergarten students. Additionally, on-site visits were made to five districts in three states.	Parents viewed half-days more positively than full-days; most teachers preferred the schedule they were working in. Busing was the biggest problem for half-day programs; full-day programs best met the curriculum needs of rural school children.	FD	Ø	HD	MX	MX

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Cieslukowski [1981]	To see if there are benefits to the full-day program.	Queried teachers and principals in one school, sent questionnaires to 51 schools nationwide, and visited two schools in Connecticut.	Schools with full-day kindergarten found that the longer session did not necessarily create physical and emotional fatigue when the teachers were properly trained. Also, teachers found the full-day schedule to be less hurried and more relaxed than the half-day.	Ø	Ø	MX	FD	FD
McClinton and Topping [1981]	To investigate first-grade teachers' perceptions of full- and half-day pupils' adjustment to first grade.	Random sample of 40 first-graders who had attended full-day kindergarten and a matched control group who had attended half-day.	First-grade teachers judged the former full-day pupils to be more capable first-grade students than the former half-day kindergartners.	FD	FD	Ø	FD	Ø
Nieman and Gastright [1981]	To assess the long-term impact of full-day kindergarten on disadvantaged students.	Examined the achievement scores of 410 full-day and 141 half-day children, with follow-ups at the fourth- and eighth-grade levels.	Full-day kindergartners had significantly higher scores than those in half-day. In the fourth and eighth grades, the differences in academic achievement were significant in favor of the full-day pupils. The former full-day pupils experienced less grade retention and special class placement than did their half-day counterparts.	FD	Ø	Ø	Ø	Ø
Rose [1981]	To examine the impact of full-day kindergarten on academic achievement and social development.	Observed 17 children in a naturalistic setting, with four children selected as case studies.	Full-day kindergarten positively affected the children's social development. Basic concept scores of full-day children were 45 percent higher than those of the norm group.	FD	FD	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Harman [1982]	To test the hypothesis that attending full-day kindergarten would positively affect reading and math achievement.	Administered achievement tests to 66 full-day and 55 half-day pupils.	The mean score gains in reading and math were greater for the full-day group, though not significantly so. The author reported that "the results . . . support the hypothesis."	ND	Ø	Ø	Ø	Ø
Salzer [1982]	To investigate middle class parents' attitudes toward full-day kindergarten.	Board of Education sponsored surveys of parental attitudes in three small town and suburban school districts in western New York State.	In the first school district, 40 percent of the parents did not like full-day kindergarten; in the second district, 30 percent rejected any change from the half-day schedule; in the third district, 40 percent preferred half-day.	Ø	Ø	MX	Ø	Ø
Warjanka [1982]	To determine how lengthening the kindergarten day affects the academic achievement of children deficient in readiness skills.	Compared the readiness scores of 30 at-risk pupils who attended a full-day kindergarten and 40 not-at-risk pupils who attended half-days.	After six months, the full-day at-risk pupils had achieved the readiness skills level of the not-at-risk half-day pupils.	FD+	Ø	Ø	Ø	Ø
Evans and Marken [1983]	To study the long-term impact of kindergarten scheduling on academic achievement; parental perceptions of the schedules were also assessed.	Examined the school records, and achievement and attitudinal scores of three successive cohorts of children (174 children), distinguished by attendance in a full- or half-day kindergarten. Also surveyed 100 parents whose children attended one of these programs.	There were no significant differences in academic achievement between children in the different programs. Parents generally preferred the schedule that their children were attending. Authors suggest that scheduling decisions be based on pragmatic, not academic, considerations.	ND	Ø	MX	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results showed a significant difference *in favor of Full-Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Campbell [1983-84]	To investigate the academic, social development, and attitudes toward school of pupils who attended a full-day schedule and pupils who attended half-days.	Examined the performances of 145 pupils assigned to full-day and 184 assigned to half-day kindergarten; queried teachers, principals, and parents involved with the full-day programs.	Full-day pupils had significantly higher achievement in phonics, counting, and visual discrimination. Parents, teachers, and principals of children in full-day kindergarten were generally supportive of the full-day program. An attitude survey yielded mixed results among the students.	FD	MX	FD	FD	FD
Fairfield Public Schools [1984]	To investigate reactions to instituting a full-day kindergarten program.	Sent questionnaires to the parents of 436 kindergarten children; and to kindergarten teachers, principals, and program leaders in eight elementary schools.	Parents were enthusiastic about their children's progress in the extended day program, and they indicated that fatigue was not a problem for the children. The professional staff was also positive about the longer day.	Ø	Ø	FD	FD	FD
Lotowycz [1984]	To determine achievement and self-concept differences between full-day and half-day kindergarten children.	Compared the scores of convenience groups consisting of 112 full-day and 74 half-day pupils.	Found significant achievement differences in favor of half-day pupils; found significant self-concept differences in favor of those in full-day kindergarten.	HD	FD	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Graja [1984]	To ascertain why school systems institute full-day kindergarten, and how they structure such programs.	Sent questionnaires to 136 schools nationwide that had full-day kindergartens.	Found that "the implementation of full-day kindergarten seems to be based on something other than academic considerations"; full-day kindergarten was received favorably by parents, teachers, and staff; and parents with children in full-day preferred a curricular focus on "academic growth and formal reading and math instruction."	Ø	Ø	FD	FD	Ø
Savitz and Drucker [1984]	To test the hypothesis that first graders with full-day experience will show greater academic achievement than those from half-day kindergarten.	Administered a reading readiness test to 10 children who had attended full-day kindergarten, and to nine who had been in half-day.	Found no significant difference in the reading scores of the two groups.	ND	Ø	Ø	Ø	Ø
Bornstein [1985]	To study the effect of full-day kindergarten on the achievement of "least ready" pupils. Also, to assess the attitudes of parents, teachers, and principals.	Examined the reading and math achievement scores of Chapter I kindergarten pupils, with and without full-day experience. Also surveyed parents, teachers, and staff.	Pupils who attended extended day kindergarten scored higher in both reading and math; significantly higher in reading. Surveys indicated that parents, principals, and teachers believe that full-day kindergarten is the better schedule.	FD+	Ø	FD	FD	FD

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.

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FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Anderson [1985]	To investigate the effects of lengthening the kindergarten day, and to test parental and teacher reactions to the longer day.	Examined achievement scores of two full-day groups, one selected from the more mature children, the other group randomly selected; two matched half-day control groups were also selected.	Found that the full-day groups scored significantly higher in reading, math, social studies, and science, regardless of how the groups had been selected. Parents reacted positively to the full-day schedule. Teachers preferred the schedule they were working in.	FD	Ø	FD	MX	Ø
Madison Metropolitan School District [1985]	To assess the educational merits of a full-day kindergarten program.	Gathered academic and social data for all kindergartners in a pilot full-day program, and surveyed full-day kindergarten teachers and parents.	Full-day pupils consistently scored higher on academic and cognitive measures; teachers found a higher level of independence among full-day pupils; parents and teachers felt that there was more balance in the curriculum of the full-day kindergarten.	FD	FD	FD	MX	Ø
New York City Board of Education [1985]	To see if full-day kindergarten produces measurable effects in bilingual and monolingual students.	Examined the academic records of 1,807 full-day and 223 half-day pupils in monolingual classes, and 242 full-day and 55 half-day pupils in bilingual classes.	Found that children who entered kindergarten with poor readiness skills made significantly greater gains in full-day classes than in half-day classes. Full-day students "in bilingual classes made greater gains in English language proficiency than students in half-day classes."	FD+	Ø	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results showed a significant difference *in favor of Full-Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
New York City Board of Education [1988]	To examine whether enrollment in full-day kindergarten resulted in higher third-grade academic achievement than enrollment in half-day.	Followed up on the pupils tested in the 1985 NYCBE study.	There were no meaningful differences between former half-day and former full-day pupils in attrition rates or referral to special education. Former half-day pupils had somewhat higher reading achievement. Pupils who had attended monolingual classes had higher average reading scores than those who had attended bilingual classes, regardless of kindergarten schedule.	MX	Ø	Ø	Ø	Ø
Dunn [1987]	To determine if a change from a half- to a full-day schedule would significantly improve children's achievement.	Data was collected on children from the first two years of a full-day program, and compared with data collected on children from the last two years of the preceding half-day program.	The full-day schedule provided more learning opportunities for the children. However, test scores on reading readiness and basic skills revealed no statistically significant differences between the two groups.	ND	Ø	Ø	Ø	Ø
Brierley [1987]	To see if full-day kindergarten increased children's opportunities for instruction in art, music, and physical education; and for personal/social development.	The scores of 229 full-day and 300 half-day students were compared on Metropolitan pretests and posttests, writing samples assessed by classroom teachers, and kindergarten grade cards in the areas of art, music and physical education.	Results showed higher achievement among full-day students in reading, language, and writing. Half-day students demonstrated greater adjustment skills in areas pertaining to personal and social growth.	FD	HD	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

FULL-DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Pasco School District #1 [1987]	To determine—*via* four different studies undertaken in the Pasco (WA) school district between 1982 and 1987—the relative effectiveness of the full-day, half-day, and alternate day kindergarten schedules.	Part one studied the three kindergarten models during the 1985-86 school year. Part two compared results from half-day and alternate day models in 1986-87. Part three compared full-day kindergarten with combined data from half- and alternate day programs in 1986-87 and 1987-88. Part four provided data on five cohorts of children studied during the period, with follow-up data on the first two cohorts through the first grade.	Reported that the full-day schedule was was considerably more effective than either alternate or half-day kindergarten for children from low, middle, and above average SES backgrounds. Also, the alternate day schedule proved more effective than half-days for children from lower SES backgrounds.	FD+	Ø	Ø	Ø	Ø
Jones and others [1988]	To explore whether at-risk children in full-day kindergarten would have higher academic achievement than their half-day counterparts.	Compared pretest and posttest data on 18 at-risk full-day and 12 at-risk half-day children in cognitive, physical, and social/emotional maturation, and compared the attendance patterns of the two groups.	In the areas of cognitive, physical, and social-emotional maturity, the full-day students improved from "marginal proficiency" to "high average proficiency," while half-day students remained at "marginal proficiency."	FD+	FD	Ø	Ø	Ø
Mongiardo [1988]	To see if a full-day kindergarten program had a greater effect on the reading achievement of first graders than a half-day program.	One group of 44 former half-day kindergartners, and another of 80 former full-day pupils, took the *Science Research Associates Achievement Series.*	There was an observed difference in favor of the full-day kindergarten pupils, but this difference was not statistically significant. The author concluded that extending the kindergarten day "would seem" to have a positive effect.	ND	Ø	Ø	Ø	Ø

Key to the Full-Day vs. Half-Day Synoptic Table:

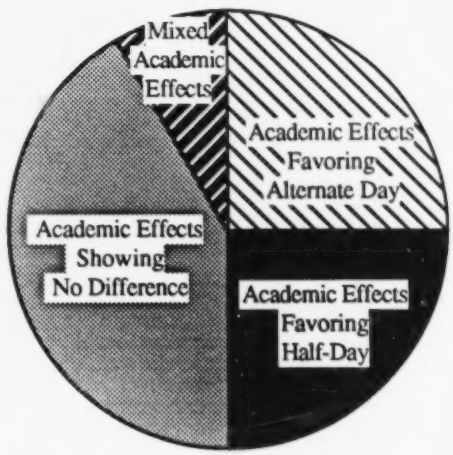
Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**FD**=Results favor Full-Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results showed a significant difference *in favor of Full-Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.

Alternate Day vs. Half-Day Schedule

Academic Achievement

A total of 14 studies compared various aspects of alternate day and half-day kindergarten. Of these 14 studies, 12 used academic achievement as a variable. Five studies found no significant differences between the two schedules (Mouw, 1976; Ulrey and others 1982; Schultz 1982; Lodi, 1984; and Gullo and Clements 1984).

Figure 6


Mixed Academic Effects
Academic Effects Favoring Alternate Day
Academic Effects Showing No Difference
Academic Effects Favoring Half-Day

Academic Effects in Studies Comparing Alternate Day and Half-Day Kindergarten
n = 12

RESEARCH FINDINGS FAVORING ALTERNATE DAY KINDERGARTEN

Four studies reported at least one academic achievement effect that favored alternate day kindergarten (Gornowich and others 1974, Cleminshaw and Guidubaldi 1979, C. Smith 1980, and Pasco School District 1987).

Gornowich and others (1974) administered the *Metropolitan Readiness Test* (*MRT*) to 787 kindergarten children in one school district over a four-year period. Alternate day pupils scored significantly higher on 15 of 21 academic comparisons.[:5]

Cleminshaw and Guidubaldi (1977) randomly selected 96 children, 48 from pre-existing half-day and 48 from pre-existing alternate day kindergarten populations. They found that the alternate day group scored significantly higher on academic competencies as measured by the *MRT*.[:87]

C. Smith (1980) examined the achievement and attitude scores of 317 kindergarten children and of 119 fourth graders to determine whether there was a significant difference in achievement and—if there was—whether the effects were long-term. She found a significant difference in favor of the alternate day

pupils at the kindergarten level. At the fourth-grade level, however, she found no significant difference. [:34]

The Pasco (Washington) School District Number 1 (1987) administered the *California Test of Basic Skills* to all of its kindergarten children during the 1984-85 school year to measure their comparability. Posttests were given to the children on four standardized test instruments. Analysis of the results showed superior achievement among the alternate day pupils on two tests of English vocabulary. There were no significant differences in the results of 11 other tests. However, when childrens' scores from above and below poverty level were analyzed separately, the results showed that children from poor backgrounds did significantly better in alternate day kindergarten than in the half-day schedule.[:58]

RESEARCH FINDINGS FAVORING HALF-DAY KINDERGARTEN

Three studies reported significant differences in academic achievement favoring half-day kindergarten students (Minnesota 1972, Wenger 1978, and R. Smith 1979).

In a study conducted by the Minnesota State Department of Education, (1972) a group of half-day pupils and a group of alternate day pupils demonstrated comparable readiness skills on the *Caldwell Preschool Inventory*. At the end of the treatment, however, the half-day pupils tested significantly higher on the ability to name the numbers one through nine, and on knowledge of the alphabet.[:18]

Wenger (1978) conducted a three-phase study correlating achievement with attendance pattern. Phase one consisted of 126 low-achieving pupils, with half-day pupils scoring significantly higher than alternate day pupils, particularly half-day morning pupils. In the second phase, 223 first graders were given the *MRT*,' and the former half-day kindergartners scored significantly higher than the former alternate day kindergartners on prereading, language, and auditory skills. In a follow-up involving 116 of the original 223 first graders, the former half-day students performed significantly better.[:154-155]

R. Smith (1979) collected data on 200 students randomly selected from 17 half-day and 12 alternate day kindergarten classes. He found that at the end of the school year, the half-day pupils scored significantly higher on readiness and achievement than the alternate day students. Later, he reexamined 155 of these students following their first-grade year, and found that the advantages of half-day kindergarten had endured to that point.[:88-90]

Attitude and Behavior Survey Results

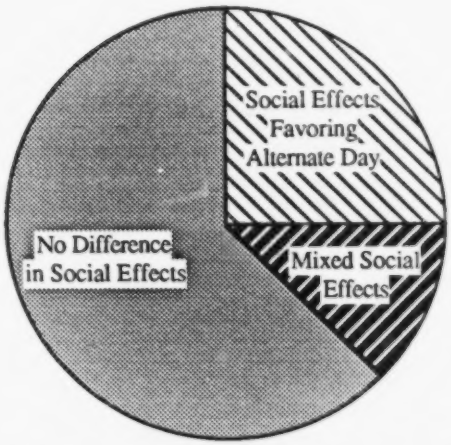
STUDENTS

Eight studies tested for non-academic student outcomes, such as classroom behavior and attitude toward school. Five of these studies reported no significant differences between alternate day and half-day kindergarten children (R. Smith 1979, Ulrey and others 1982, Schultz 1982, Lodi 1984, and Finkelstein 1983).

The other three studies reported at least one non-academic effect favoring

alternate day kindergarten students (Cleminshaw and Guidubaldi 1977, C. Smith 1980, and Gullo and Clements 1984). Cleminshaw and Guidubaldi (1977) tested pupils for both motivation to achieve and for social competence. While they discovered no significant difference with regard to motivation, the *Kohn Competence Scale* did reveal a significant advantage for the alternate day pupils in social competence.[:87]

Figure 7



Student Attitude and Behavior Effects in Studies Comparing Alternate Day to Half-Day Kindergarten
n = 8

C. Smith (1980) reported significantly higher scores on the *Self-Observation Scale* among alternate day pupils. However, she did not find that those differences endured to the fourth-grade level.[:34]

Gullo and Clements (1984) administered the *Conner's Hyperactivity Rating Scale* to two matched groups of kindergarten children. They found significant differences in originality and independent learning favoring the alternate day group. On 13 other behavioral factors, they found no significant differences.[:54]

Figure 8

Parental Preference Effects in Studies Comparing Alternate Day and Half-Day Kindergarten
n = 7

PARENT ATTITUDES

Seven studies compared parental attitudes toward the alternate day schedule with those toward the half-day schedule. Six of the seven studies reported parental preference for the alternate day schedule (Minnesota Department of Education 1972, Gornowich and others 1974, Cleminshaw and Guidobaldi 1977, C. Smith 1980, Ulrey and others 1982, and Menser 1983).

In the Minnesota study:

- 76 percent of the parents reported that fatigue was not a problem for their children;
- 69 percent said their children adjusted easily to the attendance pattern;
- 84 percent said their children did not experience learning difficulties because of the schedule;
- 72 percent of the parents said that they had no difficulty with the alternate day schedule;
- 72 percent of the parents who had children attending both schedules preferred alternate day kindergarten.[:19]

Gornowich and others (1974) distributed a questionnaire to parents of children attending alternate day kindergarten. When asked to choose between alternate days, half-days, or "no preference," 62 percent of the parents chose alternate days, and 36 percent chose half-days.[:10]

The *Parental Attitude Scale* was used by Cleminshaw and Guidobaldi (1977) to assess parents' opinions of the alternate day kindergarten schedule. They found parents significantly more satisfied with the alternate day schedule, citing reasons of family convenience. [:87-88]

Greater convenience to family schedules was also cited by C. Smith (1980) as the primary reason why the parents in her study preferred the alternate day schedule to the half-day schedule. [:34]

Ulrey and others (1982) surveyed parental satisfaction with an experimental alternate day kindergarten at the outset and the conclusion of the treatment. They found that the majority of parents maintained a positive attitude toward the alternate day schedule. However, they also reported that the parental *dissatisfaction* rate increased over the course of the treatment from 21 to 34 percent. [:241]

Menser (1983) surveyed parents whose children were involved in a pilot alternate day kindergarten. These parents appreciated the flexibility that the alternate day schedule afforded them. In addition, they reported that their children underwent positive changes as a result of switching to alternate days.[:92]

One study reported a parental preference for half-day kindergarten (Mouw 1976). Mouw reported that 59 percent of parents with children who had attended both schedules preferred half-days.[:14]

TEACHER AND PRINCIPAL ATTITUDES

TEACHERS

Seven studies surveyed teacher opinion about kindergarten scheduling (Minnesota 1972, Gornowich and others 1974, Mouw 1976, Schultz 1982, Finkelstein 1983, Menser 1983, and Gullo and Clements 1984).

Neither Minnesota (1972) nor Menser (1983) elicited explicit teacher preferences. Menser did report that teachers believed that how well they accepted a change in kindergarten scheduling influenced the way the rest of the community accepted it.[:92] Teachers surveyed in Minnesota said that the greatest advantage to the alternate day program was the longer uninterrupted work period. The two greatest disadvantages were reportedly pupil fatigue in the afternoon and learning

difficulties caused by the intermittent schedule.[:20]

Schultz (1982) revisited a Wisconsin school district in which teachers had previously reacted negatively to an experimental alternate day kindergarten program. The results indicated that, one year after the alternate day program had been established, teacher attitudes were not so negative, and that alternate day kindergarten was workable. Still, the teachers in this district preferred half-days.[:5-6]

Both Finkelstein (1983) and Gullo and Clements (1984) also found a teacher preference for half-days. Finklestein surveyed 200 kindergarten teachers and found that a significantly greater percentage of the half-day teachers were satisfied with their work schedule than were alternate day teachers.[:144]

Gullo and Clements reported that although the alternate day teachers in their study appreciated not having to teach the same lessons twice a day, their reaction to alternate day kindergarten was largely negative. These teachers cited child fatigue and the interrupted classroom schedule as major drawbacks.[:54]

The teachers in Gornowich and others (1974) generally favored the alternate day schedule. While expressing reservations about the irregular attendance pattern, they believed that in the alternate day program:

- The children could participate in more of the total school program—in areas such as music, art, and physical education—because of the extended day;
- Periods could be extended to include more of the fun activities.[:9]

The three kindergarten teachers who participated in Mouw (1976) were evenly divided over scheduling preference.[:22-23] One teacher preferred half-days; another, alternate days; the third said that the two schedules were not comparable.

Figure 9

Teacher Preference Effects in Studies Comparing Alternate Day and Half-Day
n = 7

PRINCIPALS

The elementary principals polled in Minnesota, Mouw, and Menser said that the greatest single factor prompting them to switch from half-day kindergarten to alternate days was the savings realized when noon transportation was eliminated. This was noted in the three studies that asked principals why their kindergartens had changed schedules.[Minnesota 1972, 20, Mouw 1976, 14, and Menser 1983, 92]

Synoptic Table Related to the Alternate Day Schedule

STUDIES COMPARING ALTERNATE DAY AND HALF-DAY KINDERGARTEN SCHEDULES

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Minnesota Department of Education [1972]	To evaluate the relative effects of the alternate day and half-day kindergarten schedules.	A survey was conducted among parents, teachers, and principals in 55 school districts that had opted for the alternate day schedule. Also, 96 children (half from each schedule) were tested for academic readiness.	72 percent of those parents who had had children in both types of kindergarten preferred alternate days. Teachers were torn between liking the longer class day, and being concerned about fatigue and the intermittent schedule. Most principals cited cost savings as the main reason for instituting the alternate day schedule. Children in half-day demonstrated the greater command of the alphabet and the numbers one through nine.	HD	Ø	AD	MX	AD
Gornowich and others [1974]	To compare the effectiveness of the alternate day kindergarten to the traditional half-day.	Collected data from 787 children from one school district over a four-year period. Also solicited parents' and teachers' opinions.	Children in alternate day scored significantly higher on 15 of 21 academic measures. Both parents and teachers favored alternate days, although some teachers did express concern over the irregular attendance pattern.	AD	Ø	AD	AD	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

ALTERNATE DAY AND HALF-DAY KINDERGARTEN (*continued*)

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Mouw [1976]	To see if the alternate day schedule meets the needs of children, and provides the same quality of education as the half-day.	Examined group test scores from seven kindergarten programs: four half-days and three alternate days. Also, parents, teachers, and principals were surveyed for their opinions of the alternate day schedule.	The test score differences between the two groups were insignificant. The three teachers involved were divided in their opinions between the two schedules. 59 percent of the parents with children in both schedules preferred the half-day. Principals said the main reason for switching to alternate days was the savings from eliminating noon transportation costs.	ND	Ø	HD	MX	AD
Cleminshaw and Guidubaldi [1977]	To assess social, motivational, and academic differences between children in alternate day kindergarten and those in half-day.	Compared motivational and achievement test scores of 96 children (48 from each schedule) randomly selected from pre-existing populations. Also surveyed parental opinion.	Alternate day children's scores were significantly higher on academic and social competency measures; there was no significant difference in motivation. Parents regarded alternate days as more convenient to family schedules.	AD	AD	AD	Ø	Ø
Wenger [1978]	To compare achievement scores of children in half-day and alternate day schedules.	There were three samples: 126 kindergarten children identified as low-achieving; 223 first graders who had attended one schedule or the other; and a follow-up on 116 of the 223 original first graders.	In the first sample, half-day children significantly outscored all others. In the second sample, former half-day kindergartners scored higher in language, auditory, and pre-reading subtests. In the third sample, former half-day kindergartners scored significantly higher in pre-reading.	HD	Ø	Ø	Ø	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

ALTERNATE DAY AND HALF-DAY KINDERGARTEN (*continued*)

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
R. Smith [1979]	To compare the relative effects of half-day and alternate day kindergarten on reading readiness, achievement, attitude toward school, and peer acceptance.	Administered achievement, attitudinal, and sociometric tests to 200 pupils randomly selected from 12 alternate day and 17 half-day classes.	The difference in reading readiness favored half-day students. This difference endured through the first grade. There were no significant differences in the other areas.	HD	ND	Ø	Ø	Ø
C. Smith [1980]	To compare half-day and alternate day children in self-concept and academic and social development at the kindergarten and fourth-grade levels. Also surveyed parents' attitudes.	Examined the achievement and attitudinal scores of 317 kindergarteners and 119 fourth-grade pupils.	The alternate day children were reported to be academically superior to the half day children. Also, alternate day children scored significantly higher on social maturity and self-security measures. There were no significant differences at the fourth-grade level. Parents found the alternate day schedule more convenient.	AD	AD	AD	Ø	Ø
Ulrey and others [1982]	To assess the effect of changing from a half-day to an alternate day schedule on pre-reading and attending skills, and on parental opinion of the program.	74 children in alternate day and a matched control group of 66 children in half-day kindergarten participated in the study. Questionnaires were distributed to alternate day parents at the beginning of the treatment, and then to all parents at the end of the year.	No significant differences in pre-reading skills or classroom behavior were found. Parents maintained a preference for the alternate day schedule, although the dissatisfaction rate increased from 21 to 34 percent during the course of the program.	ND	ND	AD	Ø	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.

ALTERNATE DAY AND HALF-DAY KINDERGARTEN (*continued*)

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Schultz [1982]	To see if there are any long-term differences between alternate day and half-day kindergarten schedules.	The literature on kindergarten scheduling was reviewed; first-, second-, and third-grade teachers were interviewed to determine their perceptions of children who attended either schedule; and a school district in which teachers, parents, and administrators had previously been negative about an experimental alternate day program was revisited.	The literature review was inconclusive. First-, second-, and third-grade teachers perceived former alternate day pupils to be no worse prepared academically, socially, and emotionally than half-day pupils, and perhaps better prepared in some cases. The revisited district showed a somewhat improved attitude toward alternate days, although teachers still preferred half-days. The study concluded that, overall, there was no compelling evidence for the superiority of either schedule.	ND	ND	Ø	HD	Ø
Lodi School District [1984]	To reevaluate the findings of the Schultz 1982 study.	In 1982-83, researchers collected data on half-day students; in 1983-84, they collected similar data on the alternate day pupils.	Regarding adjustment to school, work habits, and academic performance, alternate day pupils were found to be at least the equal of half-day pupils. There was no compelling evidence that one schedule was superior to the other.	ND	ND	Ø	Ø	Ø
Finkelstein [1983]	To compare differences in instructional time; goals and outcomes; and pupil, teacher, and principal preference.	Surveyed teachers, principals, and students in several Midwestern states; sent questionnaires to university professors of early childhood education in 13 states.	Goals were set more frequently in half-day kindergarten. Teachers and principals in alternate day programs valued rest and snack times more highly. Alternate day programs spent more time in teacher directed activities. Half-day teachers were more satisfied with their schedules. There was no significant difference in children's attitude toward school.	Ø	ND	Ø	HD	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.

ALTERNATE DAY AND HALF-DAY KINDERGARTEN *(continued)*

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Menser [1983]	To conduct a long-term observer/participant study of a program change from half-day to alternate day kindergarten.	Interviewed, surveyed, and attended meetings of teachers and parents in one school district.	Parents liked the flexibility of the alternate day schedule, and overwhelmingly perceived positive changes in their children following the change to alternate days. Teachers believed that their acceptance of alternate day kindergarten influenced its acceptance by the community. The alternate day schedule saved money by eliminating noon transportation costs.	Ø	Ø	AD	MX	AD
Gullo and Clements [1984]	To compare the relative effects of alternate day and half-day kindergarten on academic achievement, classroom behavior, and attendance.	99 children attending half-day and 98 attending alternate day kindergarten during successive school years were evaluated using the *Metropolitan Readiness Test* and attendance data. Also, teachers who had taught both schedules were interviewed.	There was no significant difference in academic achievement. Alternate day children were rated higher on originality and independence, but on 13 other behavioral variables, there were no significant differences. There was no difference in attendance. Teachers tended to be more negative about the alternate day schedule.	ND	MX	Ø	HD	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

ALTERNATE DAY AND HALF-DAY KINDERGARTEN (*continued*)

AUTHOR AND YEAR	PURPOSE	SAMPLE	FINDINGS	A	S	P	T	Pr
Pasco School District #1 [1987]	To determine—*via* four different studies undertaken in the Pasco (WA) school district between 1982 and 1987—the relative effectiveness of the full-day, half-day, and alternate day kindergarten schedules.	Part one studied the three kindergarten models during the 1985-86 school year. Part two compared results from half-day and alternate day models from 1986-87. Part three compared full-day kindergarten with combined data from half- and alternate day programs in 1986-87 and 1987-88. Part four provided data on five cohorts of children studied during the period, with follow-up data on the first two cohorts through the first grade.	Reported that the full-day schedule was considerably more effective than either alternate or half-day kindergarten for children from low, middle, and above average SES backgrounds. Also, the alternate day schedule proved more effective than half-days for children from lower SES backgrounds.	MX+	Ø	Ø	Ø	Ø

Key to the Alternate Day vs. Half-Day Synoptic Table:

Scheduling Effects—**A**=Academic achievement; **S**=Social skills; **P**=Parents' attitudes; **T**=Teachers' attitudes; **Pr**=Principals' attitudes.
Kindergarten Schedules—**AD**=Results favor Alternate Day Kindergarten; **HD**=Results favor Half-Day Kindergarten; **ND**=Results find no significant difference.
+Study results show a significant difference *in favor of Alternate Day Kindergarten for disadvantaged children.*
Ø=An effect not tested for in the study.
MX=Results within an effect were mixed.

Conclusions

The current research base concerning the relative effectiveness of half-day and full-day kindergarten programs contains technical problems which render most conclusions tentative. Some reviewers of the research base have cited the lack of controls for pupil selection, time, and shifts from a social emphasis to an academic one as important contributors to the inconclusiveness of the currently available data.

Other reviewers acknowledge these qualitative difficulties in some of the studies. They contend, however, that the quantity of research findings in specific directions carries important implications that should be taken into consideration by those charged with scheduling kindergarten programs.

It is important to remember that in so broad and complex a topic as the effects of kindergarten scheduling, tightly controlled research experiments are difficult, or impossible, to design. Therefore, the analyst is left to draw only tentative conclusions from the current research base. However, the alternative—basing kindergarten scheduling decisions on financial considerations, personal preference, or speculation—is certainly less desirable.

Full-Day vs. Half-Day Kindergarten Programs

On the basis of the preponderance of the research literature from 37 studies comparing full-day kindergarten with half-day kindergarten, the following tentative conclusions can be drawn.

- Five studies found at least one positive academic effect favoring half-day kindergarten over full-day. These studies were: DeRosia (1980), Humphrey (1980), Lotowycz (1984), Brierley (1987), and New York City Board of Education (1988).
- In each of 12 studies there was at least one point at which there were no significant differences in academic effects between the full-day and the half-day schedules.
- Twenty studies found results that favored the full-day schedule in academic achievement. They were: Winter and Klein (1970), Alper (1979), Adcock and others (1980), Humphrey (1980), Humphrey (1983), Humphrey

(1988), Oliver (1980), DeRosia (1980), McClinton and Topping (1981), Nieman and Gastright (1981), Warjanka (1982), Campbell (1983-84), Lotowycz (1984), Anderson (1985), Bornstein (1985), Madison (1985), New York City Board of Education (1985), Brierley (1987), Pasco (1987) and Jones and others (1988).

- Seven studies measured the effects of full-day kindergarten on educationally disadvantaged children. All seven reported significant differences in favor of full-day programs as compared to half-day programs. They were: Winter and Klein (1970), Lysiak and Evans (1976), Alper (1979), Warjanka (1982), New York City Board of Education (1985), Pasco (1987), and Jones and others (1988).
- Most teachers reported that they prefer the full-day schedule to the half-day. The full-day schedule allows teachers to devote more uninterrupted time to academic pursuits.
- Parents generally reacted favorably to the full-day kindergarten schedule. The two most frequently reported reasons for this were: the full-day program accommodated family schedules well when both parents worked outside of the home; and parents appreciated the more complete preparation for first grade which their children received in full-day kindergartens.
- Fatigue was reportedly not a long-term problem for most full-day kindergarten pupils.
- A substantial majority of studies that reported academic and social differences found in favor of the full-day kindergarten. These differences were reportedly due primarily to the uninterrupted time that full-day teachers were able to devote to teaching skills. Also, most full-day kindergarten programs tended to have a more academic orientation.
- There was agreement that for children from low socio-economic or educationally disadvantaged backgrounds, full-day kindergarten provides significantly greater benefits than half-day kindergarten.

Alternate Day vs. Half-Day Kindergarten Programs

On the basis of the research literature from 14 studies comparing alternate day kindergarten and half-day kindergarten, the following tentative conclusions can be drawn.

- The research literature is evenly divided on the relative academic benefits of alternate day and half-day kindergarten.
- Five studies found no significant differences among advantaged children between half-day and alternate day kindergartens: Mouw (1976),

Ulrey and others, (1982), Schultz (1982), Lodi (1984), and Gullo and Clements (1984).

- Three studies reported significant academic differences among advantaged children in favor of alternate day kindergarten: Gornowich and others (1974), Cleminshaw and Guidobaldi (1977), and C. Smith (1980).
- Three studies found the half-day schedule to be to the children's best benefit: Minnesota (1972), Wenger (1978), and R. Smith (1979).
- Pasco (1987) found alternate day programs to be significantly better for disadvantaged pupils.

- Eight studies tested for non-academic student outcomes, such as classroom behavior and attitude toward school.
- Five studies found no significant differences between alternate day and half-day pupils in non-academic spheres: R. Smith (1979), Ulrey and others (1982), Schultz (1982), Lodi (1984), and Finklestein 1983).
- Three studies reported at least one non-academic effect favoring the alternate day schedule: Cleminshaw and Guidobaldi (1977), C. Smith (1980), and Gullo and Clements (1984).
- Kindergarten teachers indicated a preference for the alternate day schedule over the half-day schedule. In general, this was because: teachers preferred the uninterrupted classroom time afforded them by the alternate day schedule; teachers appreciated not having to do the same things twice each day as they usually do when teaching two half-day sessions.
- Principals generally preferred the alternate day schedule over the half-day schedule. The most often reported reason for this was the savings which resulted from eliminating noon transportation costs.
- Parents, for the most part, reacted positively to the alternate day program. Most parents reported that neither fatigue nor learning difficulties resulted from the alternate day schedule.

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